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ABSTRACT

In an attempt to compare the job activities of recent graduates from librarianship and internship programs supported by the National Library of Medicine (NLM) with a comparable group of graduates from non-NLM-supported programs in librarianship, detailed questionnaires were administered to graduates from both groups. They were asked to describe the tasks they performed on their present and last held jobs, the percentage of time spent on each task, the degree to which their training had prepared them to perform that activity, their professional activities, and their salary. Results showed that while all groups of graduates were heavily engaged in traditional library activities, graduates of NLM-supported internship programs were significantly more involved with activities related to application of automatic data processing, computers and computer programing, library administration, and design implementation/preparation activities. They were also earning higher average salaries, were more apt to be working in a medical library, and were more likely to be involved in research or development activities. The findings suggested also that many graduates of library programs were having difficulty finding a job in a medical library. Survey questionnaires and data tables are included in appendixes. (Author/LS)

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An Evaluation of the National Library of Medicine (NLM) Training Grant Program

by

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HUMAN RESOURCES RESEARCH ORGANIZATION

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16. Abstracts
The purpose of this study was to compare the job activities of recent graduates from librarianship and internship programs supported by the National Library of Medicine with a comparable group of graduates from non-NLM-supported programs in librarianship. An attempt was made to contact approximately 310 persons who had graduated from NLM-supported Master's degree and internship programs since 1966. Those located were asked to complete a detailed questionnaire in which they described the tasks they performed on their present and last held jobs, the percentage of time spent on each task, the degree to which their training had prepared them to perform that activity, their professional activities, salary, and so on. The responses obtained from the graduates of NLM-supported programs were compared with those obtained from 144 persons who were currently working in a medical library setting and who had graduated from a non-NLM-supported librarianship program since 1966. The results showed that
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ABSTRACT (Continued)

all groups of graduates were heavily engaged in traditional library activities. However, graduates of NLM-supported internship programs were significantly more involved with activities related to application of automatic data processing, computers and computer programming, library administration, and design/implementation/preparation activities. Also, internship program graduates were, on the average, earning higher salaries, more apt to be working in a medical library, and more apt to be involved in research or development activities. The findings seem primarily to reflect the nature of the individual NLM-supported program. The findings suggest also that many graduates of library programs are having difficulty finding a job in a medical library. The difficulty of developing a training program that will have a major impact on how librarians perform their job was also considered.

FORM NTIS-35 (10-70)

USCOMM-DC 40329-P71

FOREWORD

Since 1966 the National Library of Medicine Extramural Program has supported, through its training grant program, a number of training programs and internships in medical librarianship. This training grant program was established in response to passage of the Medical Library Assistance Act of 1965 (PL 89-291). In recent years it appears that most persons entering the field of medical librarianship have been graduates of one of the NLM-supported training or internship programs. The purpose of the study reported herein was to evaluate the degree to which the NLM training grants program seems to have met its objectives.

The study was performed by Division No. 1 of the Human Resources Research Organization (HumRRO), Alexandria, Virginia, J. Daniel Lyons, Division Director. The study was sponsored by the Extramural Program of the National Library of Medicine (RFP #72-105). The period of performance commenced in June 1972 and continued through September 1973.

Dr. C. Dennis Fink, HumRRO Division No. 1, was the Principal Investigator and is responsible for the views and interpretations expressed in the report. Data collection and analysis support was provided by Dr. Richard D. Behringer, Ms. Jane Lee, and Ms. Judith C. Klotz, all of HumRRO.

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An Evaluation of the National Library of Medicine (NLM) Training Grant Program

STUDY OBJECTIVE

One important aspect of the training grant program of the National Library of Medicine (NLM) deals with the promotion of innovative graduate and post-graduate training programs for the education of medical librarians. The primary goal of this training is to educate and develop leaders in the design and management of complex multimedia biomedical information centers and systems. Since 1966, the NLM has supported a number of Master's degree programs[1] in biomedical librarianship, and also a number of post-MA-degree internship programs.[1] Students attending these programs received a stipend, tuition plus support, for certain types of family and travel expenses. The objective of the study reported here was to:

> "... assess the effect on medical librarianship of the NLM supported training grants program graduates in terms of their utilization of new skills and definitions of new roles."

Persons who are now working in a medical library setting and who have graduated from some type of librarianship program since 1966 are the products of three general categories of training programs:

- Master's degree training programs supported by NLM
- Internship programs supported by NLM
- Librarianship programs not supported by NLM

The specific objectives of this study were to compare graduates of the above three classes of programs in terms of how the groups differed from one another with respect to:

- Types of tasks performed
- Performance levels—effectiveness of performance
- Creative or innovative contributions
- Professional role, attitudes and sets

[1] Detailed descriptions of these programs can be obtained from the Extramural Program of the National Library of Medicine.

REVEIW OF NLM-SUPPORTED MA TRAINING AND INTERNSHIP PROGRAMS

In 1966, Congress passed the Medical Library Assistance Act (PL 89-291). This Act was extended and amended by the Medical Library Assistance Extension Act (PL 91-212) in 1970. One of the seven authorities specified in the original Act was to "assist in the training of medical librarians and other information specialists in the health sciences." To implement this portion of the Act, expenditures were authorized beginning with the fiscal year ending June 30, 1966; the Training Grant Program of the NLM Extramural Programs was established in part to oversee the implementation of this portion of the Act. Since 1966, a variety of training programs supporting both graduate and post-graduate work in computer sciences, medical editing, history of medicine, as well as medical librarianship, received funding. Medical librarians graduated from eight NLM-supported Master's degree programs, and eight NLM-supported internship programs. As of September 1972, all Master's degree programs were operational, whereas only four of the internship programs were in operation.

From 1966 through mid-1973, close to 350 persons have been trained in NLM-supported programs. This number constitutes a substantial majority of the medical librarians who have been trained as such since 1966. While the NLM Training Grant Program was being implemented, an attempt was made to support programs that were innovative and that had the potential for producing persons who could go on to be leaders in the field of biomedical communications and librarianship. There are, however, substantial differences of opinion regarding just how medical librarians should be prepared. Therefore, each of the training and internship programs supported by the NLM was allowed to develop its own curriculum and to emphasize, as the program director saw fit, certain aspects of medical librarianship. Thus, certain programs stressed library administration, others emphasized the application of computer technology, and still others emphasized the contribution a librarian could provide to a medical research team.

The persons associated with each NLM-supported program did attempt to carefully select students who were of high caliber and strongly interested in pursuing a course related to medical librarianship or biomedical communications. However, there was no

stipulation that the students, upon graduation, had to enter the field of medical librarianship. For a variety of reasons, many did not choose to do so; others, in order to obtain employment, had to take a job in a non-medical library setting or even a non-library setting.

In interpreting the results of this study it should be remembered that in the mid-1960s there was an apparent shortage of medical librarians. (Prior to 1966 there were only two programs in medical librarianship.) By 1970-71 this shortage had been largely eliminated, at least in certain areas of the country. The survey results indicate that recent graduates have experienced some difficulty in obtaining employment in a medical library setting. The reasons for this are not clear. It may be, in fact, that there now are enough medical librarians. It may also be that there are not enough funds available to hire adequate numbers of medical librarians. In any event, the apparent lack of suitable job opportunities, a condition which seems to have developed within the last two years, has undoubtedly affected the findings of this study.

It should also be noted that a student who has been trained in an innovative program may indeed possess special skills and knowledges which could be of great use. However, this does not ensure that a position will be found in which those skills and knowledges can be used. An analogy might be appropriate here. Up to 1966, the training of medical librarians might be viewed as the production of square pegs to fit in square holes. Since 1966, an attempt has been made to produce round pegs with the hope that, someplace out there, there were many round holes to place them in. This last assumption may have been a bit faulty.

METHODOLOGY

IDENTIFICATION AND LOCATION OF GRADUATES OF NLM-SUPPORTED PROGRAMS

Records maintained by the Extramural Program of the NLM were used to identify those persons who were graduates of NLM-supported programs. It was decided to contact

graduates of 11 programs: 6 NLM-supported Master's degree programs and 5 NLM-supported post-MA internship programs. The locations of these programs are shown in Table 1.

Table 1

Location of NLM-Supported Programs in Survey, Number of Graduates Since 1966, and Number of Graduates Responding to Survey

	Approximate Number of Graduates Since 1966	Number of Graduates in Survey	Percent of Total in Survey
Master's Degree Programs			
University of Chicago	35	16	40
University of California (L.A.)[a]	20	9	45
Case Western Reserve U	58	36	62
University of Missouri	10	5	50
University of Illinois	37	13	35
University of Minnesota	49	25	51
Subtotal	209	104	50
Internship Programs			
University of California (L.A.)[a]	28	19	70
University of Tennessee	32	17	53
Washington U. (St. Louis)	22	18	81
Johns Hopkins University	11	6	54
Wayne State University	8	7	85
National Library of Medicine	--	2	--
Subtotal	101	69	66
Total	310	173	55

[a]Two different programs are located at UCLA, a master's-degree-producing program (Training Program for Medical Library Systems Analysts), and a post-master's degree internship program (UCLA Biomedical Library Training Program in Medical Librarianship).

In addition, two graduates of the internship program of the National Library of Medicine were included in the final sample.

Based on NLM records, a list of graduate names and last known addresses was compiled for each program and sent to the program director. The director updated the list and supplied more current addresses, if available. Through this procedure 237 usable names and addresses were obtained—160 MA training program graduates and 77 graduates of the internship programs. These persons were sent the questionnaire contained in

Appendix A and discussed in a subsequent section of this report. Returns were received from 173 persons, for a rate of return of 73%.

Approximately 75 persons completed and returned the initial version of the questionnaire. This was considered too low a rate of return. Therefore, NLM records and telephone facilities were used to contact approximately 75 persons who had not yet returned their questionnaire. This procedure produced returns from 65 more persons. Finally, 20 persons contacted as control subjects turned out to be very recent graduates of NLM-supported programs. Their returns were added to those received from persons previously identified as graduates of NLM-supported programs. Altogether, usable returns were received from 104 graduates of NLM-supported MA training programs and 69 graduates of NLM-supported internship programs.

IDENTIFICATION AND LOCATION OF GRADUATES OF NON-NLM-SUPPORTED LIBRARIANSHIP PROGRAMS

The control group for this study consisted of a sample of persons who were currently working in a medical library setting, and who were recent graduates (1966 or later) of a non-NLM-supported librarianship program. This group was obtained as follows:

(1) Using directories such as the Directory of Health Sciences Libraries in the United States, and the Directory of Medical Libraries, a representative sample of hospital, university, corporation, and professional association libraries was selected.

(2) Directors of these libraries were contacted by letter and asked to identify on a form (see Appendix B) those professionals on their staff who had graduated from a librarianship program since 1966. In this fashion approximately 335 potential respondents were identified.

(3) Each potential respondent (recent graduate of a non-NLM-supported program) was sent a questionnaire; 144 usable returns were obtained, for a rate of return of 47 %.

SURVEY INSTRUMENTS

Survey of Medical Librarians and Biomedical Communications Specialists

The questionnaire contained in Appendix A was used to survey recent graduates of NLM and non-NLM-supported programs. The questionnaire is composed of four sections:

Section I—Personal Information

Section II—Educational Information

Section III—Professional Employment Form

Section IV—Opinion Questionnaire

Section III, the Professional Employment Form, is quite different from the typical employment survey form. The essential feature of the form is that the respondents were asked to describe their present job and the last previous job held since graduation from a training or internship program. For each job the respondent described quite specifically up to ten of the important tasks performed while holding the job. For each task description the percent of time devoted to that task on a yearly basis was recorded. Then, for each task description answers were provided to five questions:

(1) What was the general nature of the activity?

(2) How well did your MA training prepare you for this task?

(3) How well did your internship program prepare you for this task?

(4) Is this an appropriate activity for biomedical librarians?

(5) How well would you judge your capability to perform this task?

The first version of the questionnaire asked the respondents to provide detailed information for their present and last four library-related jobs. The number of questionnaire pages required to provide space to record information on five jobs was quite large—large enough to make the questionnaire look rather formidable. After returns had been received from about 50 persons, it became apparent that most respondents had never held more than two library jobs, and if they had they could not remember much about the earlier ones. Therefore, it was decided to shorten the questionnaire by asking the respondent to report on only two jobs. This action was of considerable help in raising the rate of return.

Section IV of the questionnaire contained eight opinion questions about the relationship of medical librarianship to types of training and to ability to perform on the job.

Employee Assessment and Training Requirements Form

This questionnaire, shown in Appendix C, served two purposes. Primarily, it was used to obtain information from supervisory personnel about the ability of their employees to perform adequately on the job. Also, the questionnaire was used to obtain information about those tasks, activities, and subject areas which, in the judgment of supervisors, needed more emphasis during the formal training of medical librarians.

In this study an attempt was made to obtain two sources of information about ability to perform on the job. In the questionnaire to the recent graduates, each respondent was asked, for each task statement listed, to provide a judgment regarding his or her capability to perform that task. As a second measure of performance capability, each respondent was asked to provide the name of his or her library director. (In some instances the respondent was the library director.) For those respondents who were not also directors, the Employee Assessment and Training Requirements Form was sent to the director of their library. The director or the immediate supervisor of the respondent was asked to complete this form by (a) listing the major tasks performed by the respondent, and (b) providing a relative and an absolute judgment of the respondent's capability to perform each listed task.

The rate of return for this form was quite disappointing. Collectively, the returns provided an evaluation for 23 training program graduates, 23 internship program graduates, and 69 of the 144 persons who comprised the control group.

Identification of Recent Graduates

This procedure has been described on page 4. It was also used to obtain information about:

(1) Weaknesses in current programs of instruction for medical librarians, as perceived by library directors.

(2) Content areas and/or skill or knowledge areas that should receive special emphasis in programs of medical librarianship, as perceived by library directors.

DESCRIPTIONS AND ANALYSIS OF SURVEY FINDINGS

The questionnaires used during this study were designed to provide data that could be used to examine five hypotheses about how graduates of NLM and non-NLM-supported programs might differ with respect to their professional activities. Findings relating to each of these hypotheses are presented in the following pages.

Hypothesis No. 1: The groups compared in this study differ from one another in terms of the types of tasks performed on the job.

Data Base

Each of the NLM-supported programs differed in terms of emphasis and in content. However, as a group they supposedly were more innovative and less concerned with the traditional content areas of librarianship. Assuming this to be the case, it might be expected that graduates of NLM-supported programs when compared with graduates of non-NLM-supported programs would be found to be working in somewhat different content areas and/or be performing different activities from the more traditionally trained librarian.

In Part III of the "recent graduate" questionnaire, the Professional Employment Form, the respondents described the important tasks associated with their present job and their last previously held job. Many of the respondents had held only one job since graduation from their last librarianship program. Thus, the following analysis is based on information about the respondent's *present or last held job.*

Data Analysis Techniques

The job activity statements provided by the respondents were content analyzed, using a detailed set of descriptors. By means of analysis, numerical data were developed

for each activity statement. An understanding of how the content analysis was performed is necessary if one is to comprehend the findings reported in this section.

In question 24 of the questionnaire, for their present job the respondents were asked to "list up to ten of the most important tasks performed while holding this position." For each task they estimated the percentage of time devoted to the task on a yearly basis. Most respondents listed between five and ten tasks and distributed their percentage of time estimates so that they added up to 100%. An illustration, taken from one of the questionnaires, is presented in Table 2.

Table 2

Illustration of a Set of Task/Activity Descriptions Provided by a Respondent for a Presently Held Job

Task/Activity Description	Percent of Time
Supervise the library personnel	35
Purchase new acquisitions	10
Budget—planning and executing	5
Purchasing supplies	5
Supervise the interlibrary loans	5
Do special research for specific persons	10
Attend meetings—both in and out of institution	5
Handle any problems that arise between library functions and hospital personnel	5
Miscellaneous small functions which come up over the course of a working day	20
	100

The first step in processing the above statements was to perform a content analysis of each and to convert each statement into a set of from two to five descriptor codes. To accomplish this the list of descriptors contained in Appendix D was employed as follows:

(1) Each statement was examined to identify the main type of activity or function involved—planning, designing, supervising, and so forth. Using the set of descriptors and definitions shown in the 1100 section of Appendix D, a descriptor was selected that seemed best to match the activity implied by the statement. In most instances this was "supervision" (code 1114) or "perform a routine task" (1109). Descriptor code 1109 refers also to the performance of any task, however complex,

provided there is good evidence that this task is one that would be covered during librarianship training programs.

(2) Descriptor codes and definitions were developed for the content or subject areas in which a librarian or information scientist usually works. Descriptors in the 9000 series cover various medical areas and also organizations with which a person might interact during job performance. Using descriptors in the 2000 through 9000 series, a content analysis was performed on each task description, and from one to four descriptor codes assigned to cover the statement.

Readers familiar with indexing procedures will recognize that the content analysis of task descriptions is very similar to the process of indexing text material, and both activities share a set of similar problems. In particular, indexer reliability is often difficult to achieve and sustain. For this reason, the content analysis performed on all task/activity descriptions was accomplished solely by the principal investigator for this study.

The initial set of descriptors came from a "list of topics used for analysis of information science curricula."[1] Using this list, the task descriptions for 50 questionnaires were free-indexed. By the end of this activity practically all the descriptors contained in Appendix D had been identified. The list of potential descriptors was refined slightly, definitions were added where needed, and the list was finalized. The first 50 questionnaires were then re-indexed.

New descriptors were added when they did not overlap or conflict with those already on the list. In some instances coordinate indexing was employed to handle the incorporation of a new content area into the descriptor list.

When descriptors were assigned to the task descriptions contained in Table 2, the results were as shown in Table 3. These coded forms of the task descriptions are what composed the major portion of the record for each respondent.

The task statements as coded are now in a form where they can be subjected to analysis. As examples, the following statements can be made for the respondent who furnished data:

(1) 35% of her time was spent on doing things in a rather routine way (summary of the % of time spent on 1109 activities).

[1] Jack Belzer, *et al.* "Curricula in Information Science: Analysis and Development," *Journal of American Society of Information Science*, vol. 22, no. 3, May-June 1971, pp. 193-223.

Table 3

Illustration of a Set of Coded Task/Activity Descriptions

Task/Activity Descriptor Codes	Percent of Time
1114 - 2119 - 2132	35
1109 - 2111 - 2200	10
1105 - 2108	5
1109 - 2111	5
1114 - 2305	5
1105 - 8301	10
1102 - 2101	5
1108 - 2107 - 9513	5
1109 - 2100	20

(2) 40% of her time was spent on supervisory activities (summary of the % of time spent on 1114 activities).

(3) 90% of her time was spent working in content areas related to typical library activities (2000 series). The other 10% of her time was spent on bibliographic work (8301 code). In most instances when librarians say they are "doing special research for specific persons," they are in fact doing bibliographic work.

The previous illustration shows how it is possible to determine for a person or for a group how their work year is spread across activity and content areas. Using the same data base, it is possible to determine the proportion of persons in any group who have been working in an activity or content area. For example, the previous set of codes is for a person who does not index, catalog, or classify (3000 series); she does not do anything of importance related to the application of ADP (4000 series); she does not use information retrieval networks (5000 series). On the other hand, she does interact from time to time with an organization outside her own library, in this instance, a hospital (descriptor code 9513).

Comparison of Groups In Terms of Work Activities and Functions

Table 4 shows how the various tasks performed by the respondents were distributed over the 15 activity categories employed for this study. Comparison between stipend and non-stipend students of NLM-supported programs *was not made* because the number of non-stipend students in the sample was very small (N = 23). Furthermore, a visual

inspection of the data for non-stipend students showed no marked deviation from the data received from stipend students. Therefore, the two types of students were treated as one group. On the other hand, there did seem to be enough differences between graduates of NLM-supported MA and internship programs to warrant treating these as separate groups throughout the analysis.

Table 4 can be interpreted as follows. Group percentages indicated substantial similarities.

(1) About 50% of the time each group performed tasks which were classified as routine activities (1109).

(2) About 12-15% of the time they were engaged in some type of supervisory activity.

(3) About 11% of the time they were engaged in some type of implementation activity (1105).

A *t* test comparison between the groups showed that the groups differed significantly on only a few of the 42 possible comparisons. Graduates of the internship programs were significantly less involved in "standard operation" types of activities (1109), and were significantly more involved in activities related to design/planning/research/analysis (1104). Training Program graduates were significantly less involved in coordinating/liaison (1102) activities than either internship program graduates or graduates of non-NLM supported programs. Also, Training Program graduates were significantly less involved in supervision (1114) than graduates of non-NLM supported programs.

A second method of analyzing activity data is in terms of the proportion of persons who spent at least a small percentage of their time on a specific class of activities. Table 5 contains the results of this analysis. By way of illustration, 92 returns from graduates of NLM-supported training programs had data usable for this analysis. Of this number 23, or 25%, listed a task that was related to the activity of planning or design (category 1104); 44, or 48%, listed at least one implementation activity (category 1105); and so on. Table 5 shows that a very high proportion of respondents (86% on the average) listed at least one routine task (1109); about 50% listed implementation activities (1105) and supervisory activities (1114).

Table 4

Average Percentage of Time Each Group Performed Tasks Related to an Activity/Action Category:
Based on Present or Last Held Job

Activity/Action Category Codes		Control Group (1)	Master's Degree Program Graduates (2)	Internship Program Graduates (3)	*t*-Test Comparisons		
					1-2	1-3	2-3
1101	Consultant	.88	.33	.60	--	--	--
1102	Coordinate/represent/liaison	1.63	.45	2.09	2.28*	--	2.02*
1103	(Category deleted)	--	--	.16	--	--	--
1104	Design/plan/research/analyze	3.99	5.13	8.86	--	2.18*	--
1105	Develop/implement/prepare/create	11.42	11.93	13.20	--	--	--
1106	Evaluate/monitor	1.20	.70	1.02	--	--	--
1107	Instruct/teach	1.94	3.57	4.05	--	1.69	--
1108	Handle difficult problems	2.12	1.30	1.25	--	--	--
1109	Perform standard operations	53.60	52.89	43.34	--	2.01*	1.79
1110	Organize/reorganize	2.20	3.25	2.92	--	--	--
1111	Production/publishing/printing	1.12	2.22	.48	--	--	1.35
1112	Public relations/promotion	.95	.96	.97	--	--	--
1113	Reprography/coding	.00	.24	.00	--	--	--
1114	Supervise/manage/administrate	17.10	11.28	17.70	2.07*	--	1.79
1115	Marketing/selling	.36	.11	.00	--	--	--

*Significant at $p < .05$.

Table 5

Percentage of Respondents of Each Group Who Performed Tasks Related to an Activity/Action Category: Based on Present or Last Held Job

Activity/Action Category Codes	Control Group (1)	Master's Degree Program Graduates (2)	Internship Program Graduates (3)	Chi-Square Comparisons		
				1 vs. 2	1 vs. 3	2 vs. 3
1101 Consultant	5.55	2.17	5.88	--	--	--
1102 Coordinate/represent/liaison	13.89	10.86	16.17	--	--	--
1103 (Category deleted)	--	1.08	4.41	--	--	--
1104 Design/plan/research/analyze	19.44	25.00	30.88	--	2.75	--
1105 Develop/implement/prepare/create	54.86	47.82	55.88	--	--	--
1106 Evaluate/monitor	6.25	7.60	10.29	--	--	--
1107 Instruct/teach	25.69	23.91	26.47	--	--	--
1108 Handle difficult problems	14.58	8.69	5.88	--	3.50	--
1109 Perform standard operations	84.72	91.30	83.82	--	--	--
1110 Organize/reorganize	16.67	20.65	23.53	--	--	--
1111 Production/publishing/printing	5.55	10.87	4.41	--	--	4.03*
1112 Public relations/promotion	15.97	10.87	11.76	--	--	--
1113 Reprography/coding	--	4.35	--	--	--	--
1114 Supervise/manage/administrate	54.17	44.57	50.00	--	--	--
1115 Marketing/selling	2.78	1.08	--	--	--	--

*Significant at $p < .05$.

Of the 42 comparisons that can be made of the data contained in Table 5, only one was significant at the .05 level. This could easily occur by chance.

Comparison of Persons Working In and Not Working In a Medical Library

All persons who comprised the "control group" for this study were working in a medical library setting. This was not true for graduates of NLM-supported programs. Thirty percent of the graduates of NLM-supported training programs, and 19% of the graduates of NLM-supported internship programs were working in *non-medical library settings*. The possible significance of this will be discussed later. Here it should be noted that many of those not working in a medical library were working in an university library, a public library, or the library of a government agency not associated with health, and so on. Thus, despite the fact that many former NLM-supported students were not working in a medical library, their work activities were quite similar to those who were working in a medical library.

With respect to work activities and content/subject areas of work, there was no statistical difference between those working in and not working in a medical library. Therefore, most of the analysis discussed in this report combines data for persons working in different job settings.

For a few work-related dimensions it might be suspected that persons working in non-medical library settings would differ from those working in medical libraries. For these dimensions separate analyses will be reported.

Comparison of Groups In Terms of Content/Subject Categories

The manner in which task statements were analyzed into content/subject areas has been discussed in relation to Table 3. With reference to Table 3, it should be noted that in many instances the percentage of time a person worked across all content/subject categories may add up to more than 100%. Using the data in Table 3 as an illustration, the percentage of time spent by that person across all eight content/subject areas was determined to be as follows:

2000 category	90%
3000 category	--

4000 category	--
5000 category	--
6000 category	--
7000 category	--
8000 category	10%
9000 category	5%
	105%

When a single task covered two or more content areas, each area was assigned the full percentage value given to that task. Thus, in Table 3, for task "h" 5% is added to both the 2000 and the 9000 categories. However, within a single task statement (e.g., task "a"), the percentage of time allocated to a content category (e.g., 2000) is not increased even though it may take two or three descriptors within the same category to describe the task.

Table 6 presents data showing the average percentage of time each study group performed tasks related to one of the eight major content/subject categories used in this study. As would be expected, for all groups the bulk of their activities were concerned with library operations and library administrative activities (2000 category). The internship program graduates were more involved with "computers and programming" (category 6000) and "analysis and evaluation" (category 7000). However, this is primarily because a number of internship program graduates were performing these tasks in non-library settings.

The important point about the group activities shown in Table 6 is that graduates of the internship programs were performing differently from either the training program or the control group graduates. Of eight comparisons between the internship and control groups, five comparisons were significant. As compared to the control group, graduates of internship programs were more involved with library operations and administration, automatic data processing, computers and programming, and analysis and evaluation; they were less involved with identification of informational content (indexing and cataloging).

Comparing training program and control group graduates, the results revealed only one significant difference—the training program graduates were spending a greater percentage of their time on activities related to automatic data processing.

Table 7 shows the proportion of persons in each group who performed at least one task in a content area. A chi-square analysis of differences revealed that with the

Table 6

Average Percentage of Time Each Group Performed Tasks Related to a Content/Subject Category:

Based on Present or Last Held Job

Content/Subject Category Codes and Subject Headings		Control Group (1)	Master's Degree Program Graduates (2)	Internship Program Graduates (3)	*t*-Test Comparisons[a]		
					1 vs. 2	1 vs. 3	2 vs. 3
2000	Library Operations and Administration	72.45	70.79	87.23	--	4.55**	3.91**
3000	Identification of Information Content	20.73	19.05	11.59	--	2.29*	1.68
4000	Automatic Data Processing	1.67	4.79	8.75	2.08*	3.39**	3.38**
5000	Information Storage and Retrieval	13.48	8.32	11.79	1.92	--	--
6000	Computers and Programming	.10	.64	2.32	--	2.74**	1.40
7000	Analysis and Evaluation	1.34	1.93	4.20	--	2.10*	--
8000	Medical and Communication Systems Research	5.83	9.24	7.12	1.55	--	--
9000	Medical Content and Organizations	6.08	4.09	7.45	--	--	--

[a] *indicates significant at $p < .05$; **, $< .01$.

Table 7

Percentage of Respondents in Each Group Who Performed Tasks Related to a Content/Subject Category: Based on Present or Last Held Job

Content/Subject Category Codes and Subject Headings		Control Group (1)	Master's Degree Program Graduates (2)	Internship Program Graduates (3)	Chi-Square Comparisons[a]		
					1 vs. 2	1 vs. 3	2 vs. 3
2000	Library Operations and Administration	98.6	94.62	97.01	--	--	--
3000	Identification of Information Content	46.85	50.54	4.79	--	--	--
4000	Automatic Data Processing	8.39	15.05	20.89	--	3.28	--
5000	Information Storage and Retrieval	39.86	24.73	41.79	4.06*	--	4.46*
6000	Computers and Programming	1.40	4.30	5.97	--	--	--
7000	Analysis and Evaluation	12.59	10.75	20.89	--	--	--
8000	Medical and Communication Systems Research	23.08	31.18	32.84	--	--	--
9000	Medical Content and Organizations	27.97	19.35	28.36	--	--	--

a*indicates significant at $p < .05$.

exception of Category 5000 (information storage and retrieval) the groups did not differ significantly. On the 4000 category (automatic data processing) there was some evidence that NLM-supported graduates were more involved with ADP activities.

It is possible that graduates of different programs may differ with respect to what they do on their first job after graduation, but not differ on subsequent jobs. One also could argue that the reverse might happen. Table 8 contains results having some bearing on these possibilities. Table 8 data are based on the respondents' present or last held job, *plus* any "last previous" job relevant to librarianship.

The data base for the percentages shown in Table 8 was developed as follows:

(1) Most respondents had held either one or two jobs since graduation from a program in librarianship.

(2) For those who held two or more jobs, an average figure was obtained for the percentage of time they spent working in a content area for their last two jobs:

Present Job	Last Prior Job	Average
25% of time work in Category IV	15% of time work in Category IV	20%

The data in Table 8 are not very different from those contained in Table 6. However, the group differences contained in Table 6 are more numerous and more pronounced. This suggests that graduates of NLM-supported programs, especially graduates of internship programs, are more apt to do different things than the traditional medical librarian *after* they have had some work experience or are on their second job.

Table 9 shows for each content/subject category the average percent of time graduates from each NLM-supported program performed tasks related to a content area. Comparisons were not made between the individual programs because in most cases the numbers of cases were too small and the responses highly variable. However, there is a suggestion that the graduates from Washington University, St. Louis and the University of California, Los Angeles "Systems Analysts"[1] programs were performing differently from the rest of the graduates of NLM-supported programs. A subsequent analysis will show that a large percentage of the respondents who were graduates of these two programs (66% and 50% respectively) were working in a non-medical-library setting.

[1]This is the UCLA master's-degree-producing program for medical library systems analysts.

Table 8

Average Percentage of Time Each Group Performed Tasks Related to a Content/Subject Category:
Based on Present or Last Held Job Plus Last Previous Job, When Relevant to Librarianship

Content/Subject Category Codes and Subject Headings	Control Group (1)	Master's Degree Program Graduates (2)	Internship Program Graduates (3)	t-Test Comparisons[a]		
				1 vs. 2	1 vs. 3	2 vs. 3
2000 Library Operations and Administration	71.55	64.14	68.66	1.81	--	--
3000 Identification of Information Content	17.43	15.31	11.16	--	1.71	--
4000 Automatic Data Processing	1.65	3.61	6.18	1.69	2.88**	--
5000 Information Storage and Retrieval	11.49	7.35	10.07	1.72	--	--
6000 Computers and Programming	.14	.63	1.62	--	2.14*	--
7000 Analysis and Evaluation	1.64	1.63	2.65	--	--	--
8000 Medical and Communication Systems Research	4.24	7.01	6.38	1.61	--	--
9000 Medical Content and Organizations	6.54	4.70	5.15	--	--	--
Other (Non-Library or Not Reported)						

[a] *indicates significant at $p < .05$; **, $p < .01$.

Table 9

Average Percentage of Time Graduates of Each NLM-Supported Master's Degree or Internship Program Performed Tasks Related to a Subject/Content Area

	Content/Subject Category Codes								
	1000	2000	3000	4000	5000	6000	7000	8000	9000
Master's Degree Programs									
University of California (L.A.)	2.9	43.9	17.1	4.3	38.6	7.1	11.1	11.0	--
University of Chicago	4.6	74.6	12.5	10.4	3.6	--	--	9.6	12.5
Case Western Reserve University	9.8	70.5	26.0	3.2	7.3	--	1.3	7.0	2.3
University of Missouri	8.0	83.0	2.0	5.0	16.0	1.0	1.0	8.0	17.0
University of Illinois	5.8	75.4	11.9	6.2	8.8	--	1.9	12.1	2.7
University of Minnesota	7.7	75.2	22.5	1.9	1.2	.2	1.4	11.0	.6
Internship Programs									
University of California (L.A.)	6.8	71.3	5.9	6.8	15.8	1.6	5.5	6.7	11.3
University of Tennessee	12.6	71.8	8.5	1.8	5.3	1.5	--	9.5	5.7
Washington University (St. Louis)	2.7	74.3	14.7	22.0	11.0	5.0	4.3	4.7	6.0
Johns Hopkins University	--	80.8	2.8	--	12.5	--	.8	5.8	--
Wayne State University	7.9	74.3	20.7	--	4.3	--	5.7	.7	--
National Library of Medicine	2.5	95.0	5.0	--	--	--	10.0	--	5.0

The easiest way to interpret the findings described so far is that what one does on the job is more apt to be determined by the requirements of the job than by the nature of one's training. Librarians working in a fairly traditional library setting have to spend much of their day performing traditional library activities. Thus as a group, graduates of NLM-supported internship programs spend only 8.75% of their time on activities related to automatic data processing. Another 12% of their time is related to information storage and retrieval (usually the operation of MEDLINE). The remainder of their job is concerned with rather traditional library activities. Therefore, any differences in emphasis between various training programs in librarianship are not apt to be dominant vis-a-vis work requirements.

One might expect that a training program which heavily emphasized some special topic, for example, systems analysis or design of ADP procedures, would attempt to place its graduates in jobs relevant to this training. Results obrained from graduates of various NLM-supported training and internship programs tend to support this hypothesis. Graduates of NLM-supported internship programs performed more ADP-related tasks because they obtained jobs (often non-library positions) where ADP and computer-related activities were required. Stated another way, certain NLM-supported programs produced non-traditional librarians *because* they taught one or more non-traditional topics *and* found non-traditional librarian jobs for their graduates.

Hypothesis No. 2: The groups differ from one another in terms of the direction of their career.

Five different sets of data were collected with the view of using these as indices of career directions:

(1) Task statements upon which a content analysis could be performed.

(2) Employment setting information, which could be used to determine whether the various groups surveyed tended to work in different settings.

(3) Salaries, to determine whether one set of graduates was able to obtain higher salaries than the other groups.

(4) Number of persons supervised, on the assumption that those in higher positions—especially administrative positions—usually supervise more employees.

(5) Number working in medical library setting, to determine whether one or more groups tend to be employed by other than medical libraries.

Analysis of Job Activity Statements

The study findings based on this element have been discussed previously. The results suggested that graduates of NLM-supported programs, especially internship programs, were more involved with ADP-related and/or with administrative activities. However, for the most part all three comparison groups were heavily engaged in rather traditional library activities.

Employment Setting

The distribution of employer settings for the three groups of graduates surveyed is shown in Table 10. Ten employer categories were used:

01 Grammar/secondary schools

02 4-year college/university/medical school

03 Hospital/clinic

04 Research establishment/technical information center

05 2-year college

06 Business or industry

07 Association or society/regional medical program

08 Government department, agency, bureau or commission/military library

09 City/county library

10 Other

For each surveyed group, most respondents were working in an university or medical school library (category 02). A chi-square comparison was made between the groups in terms of whether or not the respondents were working in an university or medical school library (employer category 02) or in some other setting. Seventy-seven percent of NLM-supported internship program graduates were working in an university or medical school library; 79% of the graduates of non-NLM-supported programs also were working in an university/medical school library. The percentage difference (77 vs. 79%) is not statistically significant. On the other hand, only 51% of the graduates of NLM-supported

Table 10

Distribution of Employer Setting Data for Three Groups of Recent Graduates of Librarianship Programs

Groups Surveyed	Employer Categories										
	01	02	03	04	05	06	07	08	09	10	O.K.
Graduates of NLM-supported Master's Degree Programs (N=104)	1	53	10	6	2	6	5	10	6	4	1
Graduates of NLM-supported Internship Programs (N=69)	2	51	5	1	--	1	1	4	1	--	3
Graduates of non-NLM-supported training programs (N=144)	0	114	9	1	--	2	9	7	2	0	--

training programs were working in an university/medical school library. This percentage is significantly lower than that for the other groups surveyed.

When interpreting these findings, it must be remembered that the control group (graduates of non-NLM-supported programs) *does not* include persons who were currently unemployed or who were working in a non-medical library setting. One would have to estimate that the "real" distribution of such graduates is more similar to that found for graduates of NLM-supported training programs.

Salaries of Recent Graduates

There are many reasons why the salary of any particular individual is at a particular level. Generally, however, groups which are more in demand than others will command a higher salary.

Salary curves for the various respondent groups of this study are shown in Figures 1 and 2. For each job described by the respondent they were asked to report their beginning salary and their present or highest salary. The curves in Figures 1 and 2 depict the *present or highest* median salaries for the present or last held job. To obtain these medians the reported salary for each respondent was first rounded off to the nearest $500.

The findings show that substantial differences exist between the earning power of the various respondent groups. The results of an analysis of variance of these differences can be summarized as follows:

(1) Graduates of NLM-supported internship programs have significantly higher salaries than do graduates of NLM-supported training programs and graduates of non-NLM-supported training programs.

(2) Graduates of NLM-supported training programs tend to have slightly higher salaries than graduates of non-NLM-supported programs. However, these differences were not statistically significant.

(3) Highly significant differences in salaries exist between male and female librarians.

(4) The salary difference between graduates of NLM-supported programs who are and who are not now working in a medical library setting was not statistically significant.

(5) A significant statistical relationship existed between salary level and number of years since graduation from a librarianship program.

From Figure 1, it may appear that internship program graduates earn significantly higher salaries than do graduates of NLM-supported training programs. However, internship program graduates have, on the average, one more year of experience and/or training than do graduates of training programs. To partially equate for this, one could compare internship program graduates who have been on the job one year or less with graduates of training programs who have been on the job one or two years. If the reader will look at Figure 1 and mentally shift the "internship" curve one year to the right, it will become obvious that there is not much difference between the salaries of graduates of the training program and the internship program graduates' salaries, but, the equivalent of four years hence, the training program graduates have higher salaries on the average.

For whatever reasons, there appears to be a short-term advantage salary-wise in having gone through an internship program. Quite possibly recruiters look for interns because they are more apt to have had relevant library experience. Also, the data for this study suggest that internship program graduates have a better chance of obtaining a good paying job outside the field of medical librarianship.

Median Salaries for Recent Graduates of NLM-Supported and Non-NLM-Supported Programs in Librarianship, by Program

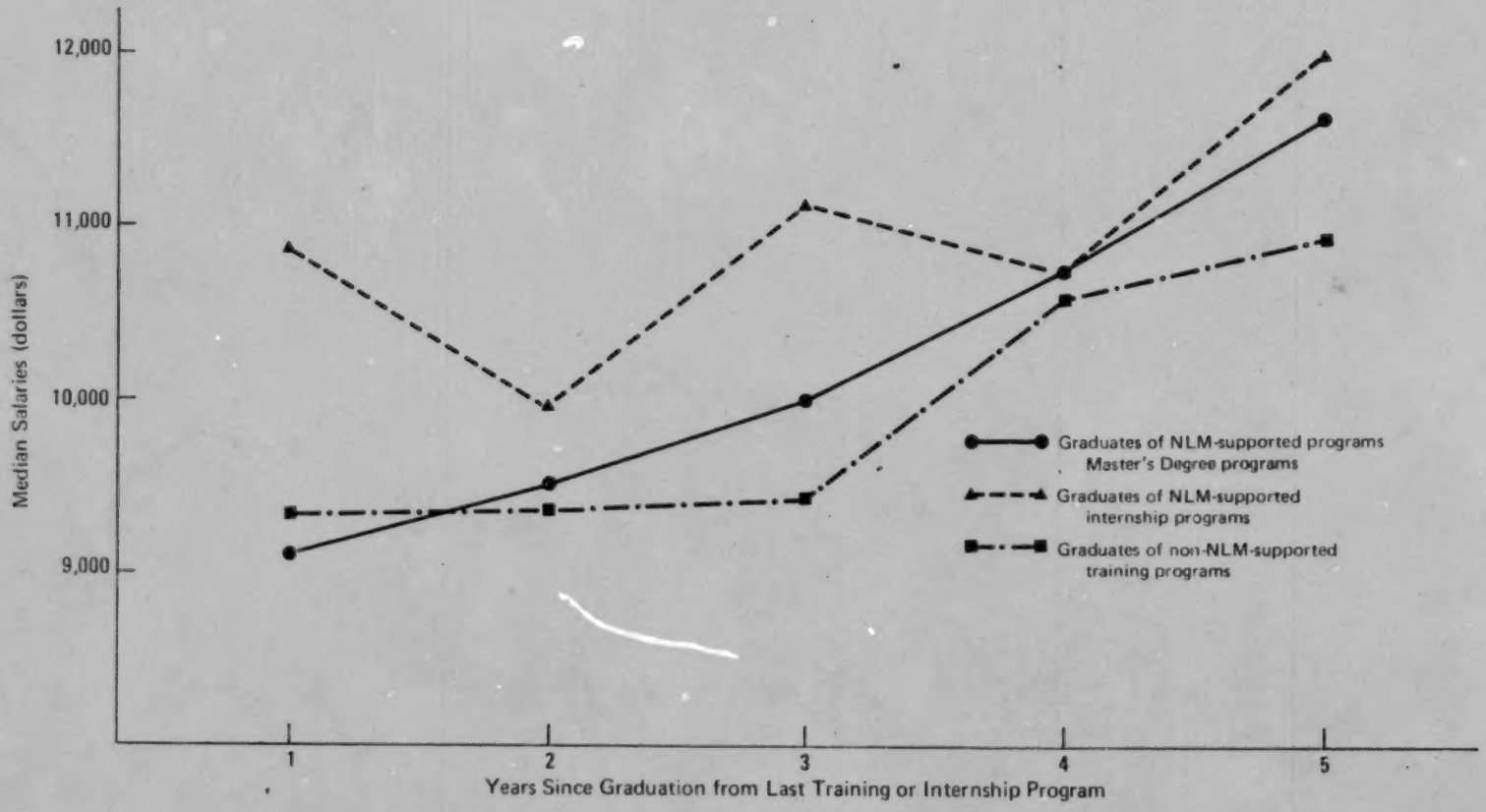

Figure 1

In a field dominated by numbers of women, it is ironic to observe that the higher paid jobs usually are filled by males (see Figure 2). Presumably this is in part because of the bias against placing women in administrative positions. To counteract this, training programs might place more emphasis on administrative training, especially such topics as interpersonnel relations, budgeting, and preparation and defense of plans. Numerous respondents did mention these topics as ones that should receive more emphasis in library programs.

Number of Respondents Working in a Medical Library Setting.

All members of the control group had to be working in a medical library setting. However, graduates of training and internship programs might be working anywhere, or not working at all. The work status of the two NLM-supported groups was as follows:

Work Setting	Graduates of Training Programs	Graduates of Internship Programs
Medical Library	62%	80%
Non-Medical Library	30%	19%
Not Working	8%	1%

Combining the "non-medical library" and "not working" categories, and then comparing the percentage ratios 62/38 and 80/20 yielded a chi-square of 7.31. For one degree of freedom this value is significant at the .01 level. A significantly greater percentage of internship program graduates have found employment in a medical library setting.

To understand the above findings one needs to examine the data obtained from individual programs in light of what is known about those programs. Table 11 contains work setting data for the individual NLM-supported programs.

With respect to training program graduates:

(1) Many graduates of the program at the University of Minnesota could not find jobs in a library setting.

(2) Apparently a number of graduates of the University of Chicago program either could not find library jobs or else found better paying jobs elsewhere.

(3) It appears that many graduates of the UCLA master's degree training program[1] chose non-library jobs because the pay was better and/or they had

[1] There are two different programs located at UCLA. The "Systems Analyst" program is a master's degree-producing program. Graduates of the UCLA medical librarian internship program were found to be working in medical library settings.

Median Salaries for Recent Graduates of NLM-Supported and Non-NLM-Supported Programs in Librarianship, by Work Setting and by Sex

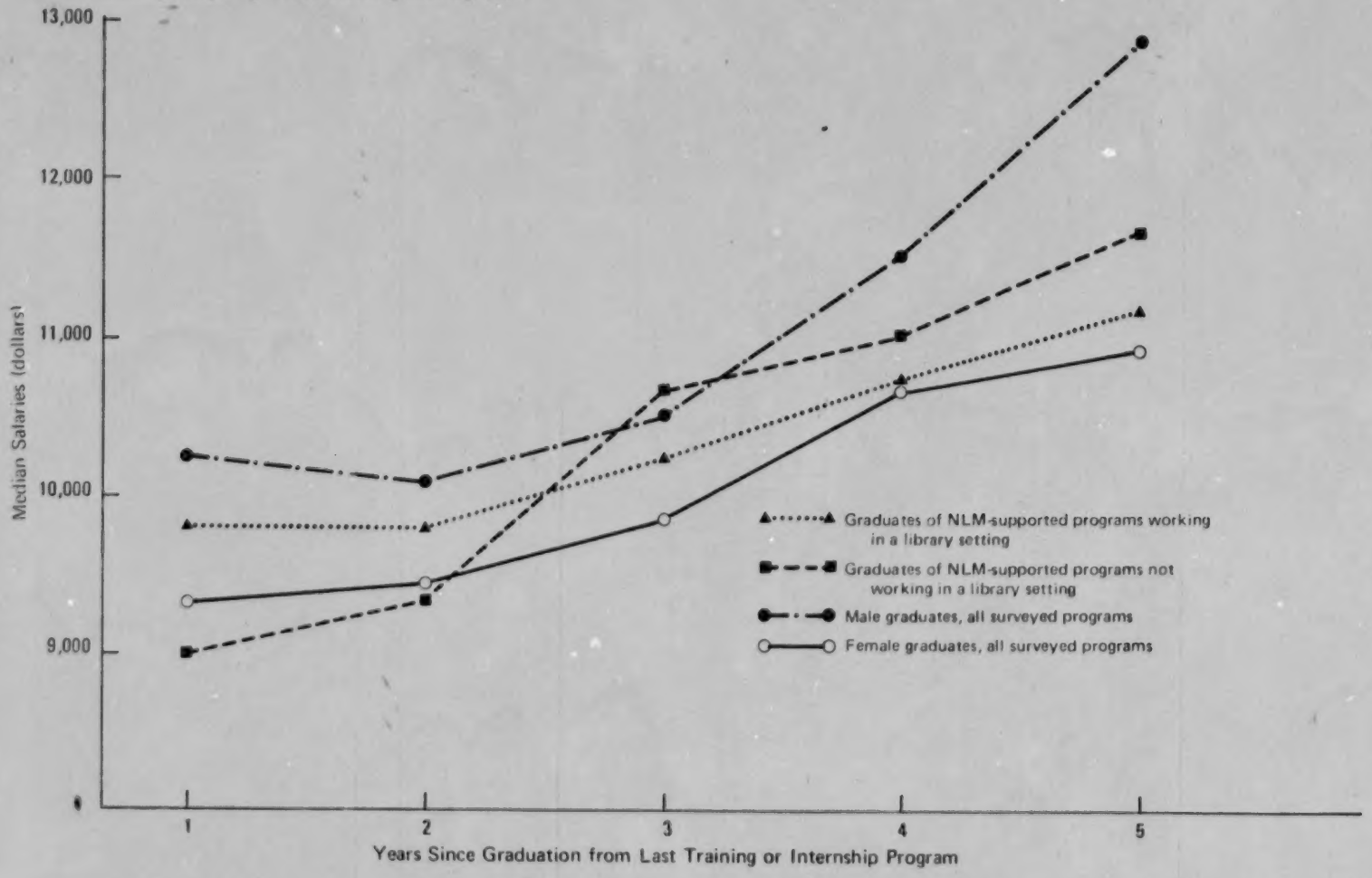

Figure 2

Table 11

Number of Graduates of Each NLM-Supported Master's Degree or Internship Program Who Were Working in a Medical Library, Not Working in a Medical Library, or Not Working

Program	Number of Respondents	Medical Library	Non-Medical Library	Not Working
Master's Degree				
U. of California (L.A.)	9	2	6	1
University of Chicago	16	5	6	5
Case Western Reserve U.	36	32	3	1
University of Missouri	5	5	--	--
University of Illinois	13	11	2	--
University of Minnesota	25	9	14	2
Total	104	64	31	9
Internship				
U. of California, L.A.	19	17	1	1
University of Tennessee	17	16	1	--
Washington U. (St. Louis)	18	9	9	--
Johns Hopkins University	6	5	1	--
Wayne State University	7	6	1	--
National Library of Medicine	2	2	--	--
Total	69	55	13	1

more of an opportunity to practice systems analysis. Also, some of these graduates were on leave from a non-library job.

With respect to the internship programs, 50 percent of the graduates of the program at Washington University who responded to this survey were working in a non-library setting. This accounts for 9 of the 13 graduates of internship programs who were working in a non-library setting, or were not working.

A work-setting comparison should not be made between NLM-supported and non-NLM-supported programs, because persons could be selected as controls only if they were working in a medical library setting. Quite possibly, the work-setting distribution for graduates of non-NLM-supported programs is similar to that for graduates of NLM-supported training programs. However, the data of this study cannot be used to examine that hypothesis.

Number of Persons Supervised

The career ladder for librarians usually leads to an administrative position, often the director of a library. Therefore, one index of the rate of advancement would be the number of persons supervised. Table 12 shows the percentage of respondents who supervised various numbers of persons during their present or last held job.

Table 12

Number of Persons Supervised by Members of Each Respondent Group

Number of Persons Supervised	Master's Degree Program Graduates	Internship Program Graduates
None	34	18
1-2	38	24
3-5	24	14
6-9	1	6
10-14	--	3
15-19	--	1
20-29	1	1
Median	1.89	2.15

A chi-square comparison of the distributions shown in Table 12 revealed no significant differences. This is not surprising, especially since a number of the new types of job positions within a library are specialist positions, with few supervisory responsibilities. We refer to positions involving the design and application of ADP procedures, preparation of critical reviews on a technical topic, acting as a consultant to regional and branch libraries, and so on.

The data presented in this section pertain to the hypothesis that "the groups differ from one another in terms of the direction of their career." The findings suggest that:

(1) Graduates of NLM internship programs do, as a group, advance somewhat more rapidly and do somewhat different kinds of work than do graduates of NLM-supported training programs and graduates of non-NLM-supported programs. The differences between these three groups, however, are not striking. Internship program graduates (a) are less apt to be involved in traditional library activities (see Tables 5 and 6), (b) are more apt to work in a

medical library setting (see Table 10), and (c) have a significantly higher earning power (which may be due to their having an additional year of experience).

(2) Graduates of NLM-supported MA-degree programs are not especially different from graduates of non-NLM-supported programs, with the following exceptions: (a) graduates of NLM-supported programs tend to receive higher salaries, and (b) they tend to be involved in more administrative activities, although they administer to a lesser number of people (Table 12).

(3) The data suggest that graduates of internship programs have more flexibility than the other groups with respect to the selection of a non-library, good-paying job.

A previous investigation (the Roper study) concluded that there was evidence that graduates of NLM-supported programs were undertaking careers somewhat different from those of the traditional medical librarian. The findings of this study could be used to support this conclusion, with considerable caution. The findings suggest that graduates of medical librarianship programs try to obtain employment in a medical library; when this cannot be accomplished, they tend to seek work in a non-medical library setting.

The study findings suggest also that those persons trained in systems analysis and/or the application of ADP have additional flexibility when seeking employment. Thus, many graduates of the UCLA "systems analyst" program and the Washington University, St. Louis internship program were able to find employment where they could use their ADP or system analysis skills. Since these skills command a higher salary, their possession can be viewed as more advantageous than the skills of a traditional librarian.

The above two programs can prepare persons for a variety of jobs, but these jobs are not often found in a medical library setting. For this reason, the appropriateness of such programs to the field of medical librarianship merits examination.

Hypothesis No. 3: The groups differ from one another in terms of their capability to perform adequately on the job.

Employee Self-Evaluation Ratings

Two sources of data were collected relating to this hypothesis. On the "recent graduates" questionnaire the respondents were asked to indicate, for each task description,

the degree to which they judged themselves capable to perform the described task. Thus, a respondent might report that she "supervised student aides in the reference department." She then would select one of the below alternatives as an indication of her self-evaluation to perform that activity.

01 Horrible, little if any capability

02 Way below average

03 Slightly below average

04 Average

05 Slightly above average

06 Way above average

07 Excellent, an expert.

For each activity description the respondent provided an estimate of the percent of time spent on that activity annually. Thus, for each of the seven performance evaluation alternatives listed, it was possible, for each respondent, to derive a set of percentage figures that described the percentage of time they judged themselves as working at a particular performance level. When these data were summarized across alternatives, it was possible to develop a number that represented the degree to which respondents judged their overall work proficiency. As an illustration, assume that the following information was provided by a respondent for her present job:

Task/Activity Description	% of Time on Task	Performance Capability
Supervise the library personnel	35	5
Purchase new acquisitions	10	6
Budget—planning and executing	05	3
Purchasing supplies	05	6
Supervise the interlibrary loan	05	5
Do special research for specific persons	10	4
Attend meetings—both in and out of institution	05	6
Handle any problems that arise between library functions and hospital personnel	05	3
Miscellaneous small functions which come up over the course of a working day	20	6

The product of each pair of "time on task" percentage and "performance capability" indicator number was summed (510 for the above example), then divided by 100. For the above example, the number 5.10 best represents the performance capability statement that

describes the overall performance of the respondent. When these performance capability indicators were averaged for each of the study groups, the results were as follows:

Study Group	Mean Group Performance Indicator
NLM-supported training programs	5.04
NLM-supported internship programs	5.09
Non-NLM-supported programs	5.01

A *t* test comparison of these means revealed no significant differences.

There have been a number of studies where self-evaluations such as the above have revealed important differences. Conversely, many other studies employing similar techniques have obtained no difference. The major technological flaw with respect to this measure and its use in this study was as follows. The respondents were asked to judge their current performance, not their performance when they *initially* had to perform the task. Thus, for reasons other than the appropriateness of a training program, many respondents might have rated themselves as capable performers. Some respondents actually reported that "I can do this well now but not when I first started on this job."

Supervisor Performance Evaluation

The data obtained from this portion of the study were disappointing in that few supervisors were willing to rate their employees. Those who did seemed to be relatively undiscriminating in the assignment of ratings. Ratings were obtained for 23 internship program graduates, 23 training program graduates, and 69 of the control group respondents.

On the Employee Assessment and Training Requirements Form, the supervisor of each respondent was asked to list the major activities of the respondent and then indicate (a) the degree to which this employee can perform the task acceptably relative to other employees who now are or once did perform the task under your supervision, and (b) the degree to which this employee can perform the task acceptably in accordance with what you consider to be a very high standard of excellence.

The alternatives which could be selected for (a) above were:

01 Worst employee relative to this task

02 Worse than majority of employees

03 Slightly worse than average employee

04 Comparable to average employee

05 Slightly better than average employee

06 Considerably better than average employee

07 Best employee relative to this task

The alternatives which could be selected for (b) above were:

01 Completely unacceptable

02 Very unacceptable

03 Below average acceptability

04 Of average acceptability

05 Slightly above average acceptability

06 Very acceptable

07 Completely acceptable

In (a) the supervisor was asked to make a *relative* judgment of performance capability; in (b) an absolute judgment was requested. The average judgments obtained for each of the study groups were as follows:

Study Group	Mean Relative Judgment	Mean Absolute Judgment
NLM-supported Training Programs	5.95	6.02
NLM-supported Internship Programs	5.82	6.06
Non-NLM-supported Programs	5.89	6.02

None of the comparisons made of these data were significant.

Based on the two sets of data just reviewed, there appears to be no indication that the performance capability of librarians is related to the various types of librarianship training they received. Of the various explanations for this lack of difference, the following seem most appropriate:

(1) A person tends to seek out and to select a job that matches his educational background.

(2) Despite educational deficiencies many persons eventually learn to perform adequately on the job.

Hypothesis No. 4: The groups compared in this study differ from one another in terms of creative or innovative contributions.

Two sets of data were collected bearing on this hypothesis. For each job described in detail the respondents were asked to describe briefly:

(1) Major research activities/projects you directed or participated in while holding this job.
(2) Major application activities you engaged in while holding this job.
(3) Major design or development activities you engaged in while holding this job.
(4) Titles of any professional papers or addresses presented while holding this job.

The information provided about these activities, papers, and addresses often was sketchy. Therefore, it was not possible to rate the activities in terms of whether or not they were legitimate research, application, etc., activities. Therefore, for each respondent the *total number* of activities, papers, and addresses listed was taken as an index of their "creative or innovative contribution."

Table 13 contains a summary of the findings. For all three groups slightly over half of the respondents reported they had engaged in at least one research and development (R&D) activity. Two-thirds of the graduates of the NLM-supported internship programs were or had been involved in at least one R&D activity. However, the percentages reported in Table 13, column 2, are not significantly different from one another.

Table 13

Reported Number of Research and Development Activities, Publications Prepared, and Addresses Given While on Present Plus Last Previously Held Job[a]

Comparison Groups	Percent of Respondents Reporting R&D Activities	Average Number of R&D Activities Reported	Percent of Respondents Who Published Papers or Gave Addresses	Average Number of Papers and Addresses Reported
Graduates of NLM-supported Master's Degree Programs	54	1.34	16	.30
Graduates of NLM-supported Internship Programs	65	2.18	31	.46
Graduates of non-NLM-supported training programs	57	1.40	21	.33

[a]Assuming job was held after graduation from last formally taken program in librarianship.

For the groups as a whole, graduates of the NLM-supported internship programs reported a *significantly higher* average number of R&D activities (Table 13, column 3). A

t test comparison between graduates of NLM-supported training programs and internship programs (1.34 vs. 2.18) was significant at the .01 level. Also, the difference between the internship graduates and graduates of non-NLM-supported training programs (2.14 vs. 1.40) was significant at the .05 percent level.

Columns 4 and 5 of Table 13 contain findings related to publication and address activities. A higher percentage of NLM-supported internship program graduates had published a report or given an address. This accounts for the finding that, on the average, more papers and addresses were given by the internship group (Table 13, column 5). A chi-square comparison of the percentages in column 4 showed the percentage difference between the training and internship groups *was significant* at the .05 level. No other column 4 comparisons were significant. The differences between the values shown in column 5 were not significant.

To develop a second data base relevant to *hypothesis No. 4* each respondent was asked to briefly "list any other professional activities you have engaged in such as consulting, teaching, conducting workshops, etc. . . .". Table 14 shows, for each comparison group, the percentage of persons who reported something on this question, and the average number of activities reported for each comparison group as a whole.

Table 14

Summary of Reported Professional Activities for Each Comparison Group

Comparison Group	Percent of Respondents Reporting at Least One Activity	Average Number of Activities Reported
Graduates, NLM-supported Master's Degree Programs	33	.63
Graduates, NLM-supported Internship Programs	38	.83
Graduates, non-NLM-supported training programs	28	.51

A *t* test comparison between the average values shown in Table 14, column 3, revealed no significant differences between groups. Also, a chi-square comparison showed

that group differences based on the percentages shown in Table 14, column 2, were not significant.

An analysis was performed to determine whether those persons working in a medical library setting were involved in more research activities or presented more papers and addresses than those persons who were not working in a medical library. The differences were not significant.

To summarize this section, graduates of NLM-supported internship programs reported significantly more research and development activities, and tended to present more papers and addresses. Most NLM-supported internship programs required their students to conduct a research project. Possibly this accounts for the findings of this section.

Hypothesis No. 5: The groups differ from one another in terms of professional role attitudes and sets, especially as these relate to archival functions of a medical librarian vs. the design, management, and educational functions which might be assumed by a biomedical information specialist.

Part IV of the survey questionnaire contained eight statements concerning the present and future roles of medical librarians and biomedical communications personnel. The respondents were to indicate, for each question, the degree to which they agreed or disagreed with the attitude or opinion expressed in the statement. A seven-point scale was used to record the responses. A scale point of "1" represented total disagreement with a statement; total agreement was represented by scale point "7".

Table 15 contains the eight statements responded to in Part IV of the Questionnaire. Table 16 shows the median group response to each question, and the results of chi-square comparisons between groups on each of the eight statements.

The results support the hypothesis that people tend to agree with an opinion which supports whatever they are now doing or how they were trained. Thus:

(1) All groups agreed with the notion that librarianship and information science should be presented in a program of librarianship.

(2) All groups agreed that medical librarians should be involved in the design and implementation of biomedical communication systems.

Table 15

List of Opinion Statements in Part IV of Survey Questionnaire

Number	Statement
1.	A librarianship program should stress librarianship or information science, and not try to combine both.
2.	A medical librarian should be actively involved in the design and implementation of new biomedical communications systems, if in a position to do so.
3.	A medical librarian does not need extensive formal training on the selection and use of medical documents and reference materials. Knowledges and skills related to these activities can be learned on the job.
4.	Different career ladders should exist for medical librarians and for those persons who wish to specialize in the area of information science or the technology of biomedical communications.
5.	If you wish to work in a medical library it is very advantageous, from the standpoint of getting a good job offer, to have completed a degree-producing program in medical librarianship.
6.	If you wish to work in a medical library it is very advantageous, from the standpoint of getting a good job offer, to have completed an internship program in medical librarianship.
7.	If you wish to work in a medical library it is very advantageous, from the standpoint of getting a good job offer, to have completed both a degree-producing program and an internship in medical librarianship.
8.	From the standpoint of capability to perform all of the tasks required of a medical librarian, after one or two years of job experience there is no difference between persons trained as medical librarians and persons originally trained as some other type of librarian.

Table 16

Extent of Agreement With Opinion Statements Contained in Part IV of Survey Questionnaire[a]

Opinion Statement[b]	(1) Graduates of NLM-Supported Master's Degree Programs	(2) Graduates of NLM-Supported Internship Programs	(3) Graduates of Non-NLM-Supported Training Programs	Chi-Square Comparisons[c]		
				1 vs. 2	1 vs. 3	2 vs. 3
1	1.92	1.53	2.11	--	--	--
2	6.30	6.54	6.01	--	--	--
3	2.35	2.48	3.02	--	6.37*	--
4	4.57	4.50	4.50	--	--	--
5	6.13	5.36	5.61	9.25**	6.25*	--
6	5.06	5.87	5.13	12.90**	--	9.92**
7	4.95	5.13	5.07	--	--	--
8	3.43	3.10	4.77	--	4.24*	6.58*

[a]Results show median group agreement based on a seven-point opinion scale: Complete Disagreement = 1; Complete Agreement = 7.

[b]See Table 15.

[c]* indicates significant at $p < .05$; **, $p < .01$.

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(3) All groups agreed that a medical librarian should have formal training in medical librarianship. However, the control group was significantly less positive on this, a finding in keeping with their training.

(4) All groups, as a whole, expressed a neutral opinion regarding the need for different career ladders for medical librarians and for other types of biomedical communications personnel.

(5) Graduates of NLM-supported training programs were significantly more positive toward the opinion that graduating from a degree-producing program helps a medical librarian get a good job.

(6) Graduates of NLM-supported internship programs were significantly more positive toward the opinion that graduating from an internship program helps one get a good job.

(7) All groups were mildly disposed to the opinion that both a degree-producing program and an internship in medical librarianship are the appropriate training requisites for a good job.

(8) Not surprisingly, graduates of non-NLM-supported programs were significantly more positive toward the opinion that after one or two years on the job there is little or no difference between persons trained as medical librarians and those trained as some other type of librarian.

Evaluation of Training by Former Students

With increasing frequency, students are being afforded the opportunity to evaluate their instructors. This provides an important type of feedback information; it allows instructors to become aware of deficits in their teaching methods. However, the instruction may still be quite irrelevant vis-a-vis the world of work. Instructors should constantly compare their course content with the requirements of those jobs for which the course is directed. This important type of comparison also can be made by course graduates. These persons who have taken a course of program must now apply their newly acquired skills and knowledges to the performance of job activities. In the judgment of this writer, this is a most important type of information. It should be continually collected on a

formalized basis, and used conscientiously to revise courses and programs of instruction. This section discusses the program evaluative data provided by the respondents of the "recent graduates" questionnaire.

On Part II of the questionnaire, for each job activity listed, the respondent was asked five questions. Question 2 asked: "How well did your MA training in librarianship prepare you for this task/activity?" Question 3 asked: "How well did your post-MA internship program in librarianship prepare you for this task/activity?" For each question, one of the following nine options could be selected:

01 not applicable
02 completely inadequate
03 very inadequate
04 somewhat inadequate
05 adequate, but no more than average
06 slightly better than adequate
07 very adequate
08 completely adequate
09 Task/activity not covered during training

Table 17 shows how the various respondent groups distributed their work activities across the "training adequacy" alternatives. While reviewing Table 17, bear in mind that graduates of NLM-supported internship program also were graduates of an MA program in librarianship and rated both their earlier MA training and their internship. In practically all instances this was a non NLM-supported MA program.

All groups consistently reported that about 20% of their present job activities had not been covered during their training. Comparing columns 1, 2, and 3, there is a tendency for graduates of NLM-supported training programs to rate their MA training as more adequate than did either the internship or control group graduates. Comparing columns 2 and 4, it appears that internship program graduates rated their internship training as more adequate than their MA training program.

The statistical significance of the above impressions was examined as follows. For each respondent a "training adequacy" score was developed for their present or last held job. This score was developed as follows:

- Alternatives 01 and 09 were assigned a rank of "1" to reflect the judgment that training *did not prepare* the respondent for a task assigned either of these alternatives. (The "not applicable" alternative was seldom selected.)

Table 17

Percent of Work Activities Judged as Adequately Covered During Master's Degree or Internship Training

Adequacy Judgment Alternatives	Adequacy of Master's Degree Programs			Adequacy of Internship Programs
	Graduates of NLM-Supported MA Programs	Graduates of NLM-Supported Internship Programs	Graduates of Non-NLM-Supported MA Programs	Graduates of NLM-Supported Internship Programs
Not covered	18.2	20.3	23.0	21.4
Completely inadequate	3.2	6.9	5.9	1.2
Very inadequate	6.4	7.6	8.3	3.0
Somewhat inadequate	8.2	8.8	14.3	2.0
Adequate, but no more than	14.2	31.5	20.8	11.4
Slight better than adequate	15.7	11.6	14.7	15.6
Very adequate	25.2	9.8	10.1	26.2
Completely adequate	9.0	3.5	3.0	19.2

- Alternatives 02 through 08 were assigned the rank of "2" through "8", respectively.
- The percentage of time devoted to a task was multiplied by the "adequacy" judgment given to that task. These products were then summed and the total divided by 100 to provide a "training adequacy" score. As an illustration:

Activity	% Time on Activity	Adequacy of MA Training	Product
Man reference desk	50	7	350
Supervise reference personnel	25	4	100
Prepare bibliographies	15	5	75
Catalog AV material	10	9	10

The "adequacy score" for the above set of job activities is 535 divided by 100, or 5.35.

In Table 18, graduates of NLM training programs judged their training to be significantly more adequate (4.91) than graduates of non-NLM-supported programs (4.03). Also, graduates of NLM-supported internship programs rated their Master's Degree training significantly less adequate (4.28) than those persons who only attended an NLM-supported MA training (4.91).

Graduates of NLM-supported internship programs rated their internship training to be significantly more adequate (more job relevant) than their MA training. However,

Table 18

Judged Adequacy of Master's Degree and Internship Training, All Work Settings Combined

Program	(1) Adequacy of Master's Degree Training	(2) Adequacy of Internship Training	*t*-Test Comparisons[a] (columns 1-2)
(1) Graduates, NLM-supported Master's Degree	4.91	--	--
(2) Graduates, NLM-supported Internship	4.28	5.17	2.73**
(3) Graduates, non-NLM-supported training	4.03	--	--
t-Test comparisons[a]:			
Row 1-2	2.33*	--	
Row 1-3	3.80**	--	
Row 2-3	NS	--	

[a]*indicates significant at $p < .05$; **, $p < .01$; NS, not significant.

there was no significant difference between the rating of internship programs (5.17) and the rating of MA programs (4.91) by NLM-supported graduates.

It should be noted that the results shown in Table 18 are considerably confounded by the fact that *all* of the control group respondents were working in a medical library whereas some graduates of NLM-supported programs were working in non-medical library settings or were not working at all. The results shown in Table 19 more accurately reflect the adequacy of the various programs compared in this study.

Table 19 presents training adequacy data for the three groups of respondents in terms of whether or not they were *working currently in a medical library*. Only a few respondents were not working at the time of this survey. These persons had been previously working in a medical library. Their data was combined with that provided by respondents currently working in medical libraries. The results contained in Table 19 can be summarized as follows:

(1) With respect to persons currently working in medical libraries:

(a) Internship training was judged significantly more adequate than NLM-supported MA programs (5.72 vs 5.13).

Table 19

Judged Adequacy of Master's Degree and Internship Training, for Persons Working and Not Working in a Medical Library Setting

Program	Adequacy of Master's Degree Training		Adequacy of Internship Training		t-Test Comparison Across Columns[a]					
	Working in a Medical Library (1)	Not Working in a Medical Library (2)	Working in a Medical Library (3)	Not Working in a Medical Library (4)	1-2	1-3	1-4	2-3	2-4	3-4
Graduates, NLM-supported Master's Degree	5.13	4.31	--	--	2.10*	--	--	--	--	--
Graduates, NLM-supported Internship	4.06	5.16	5.72	1.76	1.87	6.08**	12.10**	1.20	4.36**	27.59**
Graduates, non-NLM-supported training	4.03	--	--	--	--	--	--	--	--	--
t-Test Comparisons[a]										
Row 1-2	3.61**	NS	--	--						
Row 1-3	4.42**	--	--	--						
Row 2-3	NS	--	--	--						
Row 1, column 1 vs. row 2, column 3	2.14*									

[a] *indicates significant at $p < .05$; **, $p < .01$; NS, not significant.

(b) NLM-supported MA programs were judged significantly more adequate than non NLM-supported programs (5.12 vs. 4.03).

(2) With respect to persons currently *not working* in a medical library setting:

(a) Graduates of NLM-supported training programs judged their training significantly less adequate than comparable graduates working in a medical library (4.31 vs. 5.13).

(b) As compared with internship program graduates working in a medical library, those graduates not working in medical libraries gave very poor ratings to their internship training (5.72 vs. 1.76).

(c) Graduates of internship programs rated their internship training significantly less adequate (less job relevant) than their MA training (1.76 vs. 5.16).

These findings can best be understood in terms of the general relationships between training programs of various types, and various types of job settings. Ordinarily, MA programs are more general than internship programs; they cover many topics; they produce generalists. Conversely, internship programs tend to concentrate on a few subject areas; they produce persons who have fairly good skills and knowledges in rather narrow areas. Thus:

(1) If a graduate of an MA program finds a job relevant to his training, the training will be judged as helpful but not completely adequate (it wasn't meant to be). If an appropriate job can't be found, some portions of one's MA training still may be relevant to whatever is one's current job.

(2) Comparing internship training with job requirements, the match is more apt to be either "a hit" or "a miss".

The impoication of all this seems to be that internship programs can be more effective than MA programs, if the internship programs are job relevant. This implies that for internship programs it is critical that careful attention be given to the job placement of program graduates.

Appropriateness of Tasks for Biomedical Librarians

On Part II of the questionnaire, for each job activity listed, the respondent was asked the following question: "In your judgment, is this an appropriate task/activity for biomedical librarians?" One of seven alternative answers could be selected:

01 Yes, should be emphasized

02 Yes, but can be handled by others also

03 No, medical persons should do this

04 No, aids/paraprofessionals should do this

05 No, information scientist, specialists should do this

06 No, other reasons

07 Not applicable

Table 20 shows how the responses were distributed across the seven "appropriateness" alternatives. The findings suggest that graduates of the internship programs judged a higher proportion of their jobs to be professional in nature.

Table 20

Percentage of Work Activities Judged as Being "Professionally Appropriate" for Biomedical Librarians, All Work Settings Combined

	Response Alternatives	Graduates of NLM-Supported Master's Degree Programs	Graduates of NLM-Supported Internship Programs	Graduates of Non-NLM-Supported Master's Degree Programs
01	Yes, should be emphasized	52.00	61.23	63.90
02	Yes, but can be handled by others also	27.56	30.34	26.21
03	No, medical persons should do this	1.21	0.30	0.17
04	No, aids/paraprofessionals should do this	4.58	6.01	2.52
05	No, information scientists, specialists should do this	5.57	0.88	0.00
06	No, other reasons	4.09	0.06	4.36
07	Not applicable	5.03	2.24	2.88

The statistical significance of the above impression was examined in a manner similar to that just described for the "Evaluation of Training by Former Students".

- Alternative 01 (Yes, should be emphasized) was assigned a rank of "3".
- Alternative 02 (yes, but can be handled by others also) was assigned a rank of "2".

- Alternatives 03 through 07 were assigned a rank of "1".
- The percentage of time devoted to a task was multiplied by the "appropriateness" rank assigned to the task. These products were summed and the total divided by 100 to give an "appropriateness score" for each respondent's present or last held job.
- To equate for job setting, the results shown in Table 21 are for only those respondents who currently were working in a medical library, or whose last job had been in a medical library.

Table 21

Judgment Concerning Degree to Which Respondent Groups Were Performing Tasks Appropriate for a Professional Medical Librarian

Program	(1) Working in Medical Library	(2) Not working in Medical Library	*t*-Test Comparisons Across Columns[a]
Graduates, NLM- supported Master's Degree	2.46	1.93	3.96**
Graduates, NLM-supported Internship	2.66	1.57	1.57
Graduates, non-NLM-supported training	2.52		2.38*
t-Test Comparisons[a]:			
Row 1-2	NS	NS	
Row 1-3	NS	--	
Row 2-3	NS	--	

[a]*indicates significant at $p < .05$; **, $p < .01$; NS, not significant.

The findings shown in Table 21 can be summarized as follows:

(1) Persons working in a medical library judged their activities as significantly more relevant to professional medical librarianship than did persons not working in a medical library setting.

(2) Internship program graduates working in a medical library ranked their jobs as significantly "more professional" than did graduates of NLM-supported training programs working in medical libraries (2.66 vs. 2.46).

(3) None of the comparisons between NLM-supported graduates and non-NLM-supported graduates was significant statistically.

SUMMARY OF PRESENT AND FUTURE TRAINING REQUIREMENTS

In Section V of the "recent graduate" questionnaire the respondents were asked to list "up to ten suggestions regarding the subject areas and/or activities which should receive special emphasis in future degree-producing and/or internship programs for librarians." Most respondents did provide at least one or two suggestions. Those most frequently mentioned are listed in Table 22. As might be expected, most of the suggestions pertain to present as opposed to potential future library activities.

Table 22

Subject Areas Listed as "Areas for Future Training" or "Areas of Undertraining"

Content Area	Percent of Respondents Who Listed the Subject Area			
	Graduates, NLM-Supported Master's Degree Programs (N=104)	Graduates, NLM-Supported Internship Programs (N=69)	Graduates, Non-NLM-Supported Master's Degree Programs (N=144)	Supervisors and Directors of Libraries (N=52)
ADP Applications	13	22	19	13
Analysis/Evaluation Techniques	10	20	10	2
Cataloging	6	9	13	23
Computers and Computing Techniques	2	6	9	2
Consortiums/Cooperative Networks	6	12	11	0
Instructional Techniques	13	19	22	4
Library Administration and Management	39	49	35	25
Literature/Information Networks and Systems	14	16	15	8
Medical Bibliography	5	9	7	10
Medical Librarianship/Libraries	20	23	18	13
Medical References/Literature	14	14	19	40
Medical Terminology	19	33	10	13
Non-Print Media/A-V Media	14	17	29	6
Personnel Supervision/Management	34	35	33	21
Public/Patron Relations	3	7	1	17
Systems Analysis/Design/Planning/Prepare	7	14	13	6
User Services	5	13	19	0

On two survey instruments for library directors, Employee Assessment and Training Requirements Form, and Identification of Recent Graduates, information was obtained regarding those subject and/or work areas for which recent graduates might have profited by additional training. This information also is presented in Table 22. When comparing the

percentage figures in Table 22, remember that the graduates listed content areas which should be stressed in future training programs while the supervisors listed content areas where recent graduates seem to have been undertrained. This probably accounts for some of the discrepancies between these two groups of respondents.

A high percentage of recent graduates and their supervisors listed "library administration and management," and "personnel supervision and management" as the two areas where more training is needed. This is not surprising since a librarian, especially a library director, is a manager and administrator.

Many respondents, both recent graduates and supervisors, mentioned the need for more training in the general area of medical librarianship. Often this seems to include the administration and technical operation of such libraries.

The need for more training on the use of medical references and familiarity with medical literature was prominently mentioned by supervisors. Many of the recent graduates also listed this as a training requirement.

The recent graduates apparently felt a need for more training in the processing of non-print media. Supervisors were less concerned about this.

All respondent groups expressed interest in more training in the application of ADP. However, few indicated a need for knowledge of computer language, programming techniques, and the more esoteric skills and knowledges associated with computer technology.

SUMMARY AND CONCLUSIONS

Recent graduates of three different types of training programs for medical librarians were compared to determine whether there were job-related differences between the groups. The groups studied consisted of 104 graduates of NLM-supported MA degree-producing programs, 69 graduates of NLM-supported post-MA internship programs, and 144 graduates of non-NLM-supported MA degree-producing programs. All respondents had graduated since 1966 from their last formal librarianship program.

The main instrument was a questionnaire which asked the respondent to describe in detail the tasks they performed on their present or last held job, and the job previous to

that. Other sections of the questionnaire were used to collect educational background information, information about attitudes toward medical librarianship, and suggestions for the future training of medical librarians. A separate questionnaire was used to obtain judgments from library directors regarding the performance capability of the respondents.

The study findings were analyzed to determine the degree to which they provided support for five hypotheses:

Hypothesis No. 1: The groups differ from one another in terms of the types of tasks performed on the job.

The findings showed that all groups were heavily engaged in traditional library activities. However, graduates of NLM-supported internship programs were significantly more involved with activities related to:

- Design/implementation/preparation/creation
- Library administration
- Application of ADP
- Computers and computer programing

Hypothesis No. 2: The groups differ from one another in terms of the direction of their career.

The findings showed that graduates of NLM-supported internship programs:

(1) Earned significantly higher salaries initially than graduates of NLM-supported or non-NLM-supported MA training programs.

(2) Were working in medical libraries in significantly larger numbers than graduates of NLM-supported or non-NLM-supported training programs.

Hypothesis No. 3: The groups differ from one another in terms of their capability to perform adequately on the job.

Based on self-evaluation ratings and supervisor performance evaluations, there were no significant performance capability differences between the groups.

Hypothesis No. 4: The groups differ from one another in terms of creative or innovative contributions.

The study findings suggested that none of the three surveyed groups were especially innovative or creative. However:

(1) Graduates of the internship programs did report a significantly higher number of research and development activities.

(2) Internship program graduates reported a significantly higher number of papers and addresses.

Hypothesis No. 5: The groups differ from one another in terms of professional role attitudes and sets, especially as these related to archival functions of a medical librarian vs. the design, management, and educational functions which might be assumed by a biomedical information specialist.

The three surveyed groups did respond differently on four out of eight of the attitude questions. Their manner of responding was in keeping with the hypothesis that "people tend to agree with an opinion which supports whatever they are now doing or however they were trained."

Other findings of interest were as follows:

(1) Graduates of internship programs rated their training as significantly more adequate than did graduates of NLM-supported and non-NLM-supported librarianship programs. However. . .

(2) If a graduate of an internship program worked in a non-medical library setting, internship training was rated very low (very non-relevant).

(3) If a graduate of an internship program worked in a medical library, internship training was rated very high.

The study findings support the proposition that NLM-supported internship programs have been reasonably successful in training persons who, as a group, are making an above-average contribution to medical librarianship. However, this conclusion should be tempered by the observation that the study findings seem to be more affected by the nature of the *individual* NLM-supported programs than by the type of program—MA degree-producing or post-MA internship program. For example, graduates of certain programs consistently obtained employment outside the field of medical librarianship. Quite possibly salaries there were more attractive. Certainly many of these non-library jobs offered more possibilities for the application of computer-oriented skills. The study findings suggest also that in some sections of the United States, especially in the mid-West, there are few job openings for medical librarians.

The NLM Training Grants Program was designed to fulfill two basic needs: librarians with a medical orientation, and persons who could become leaders in the field of medical

librarianship. In one sense the Training Grants Program has or eventually will fulfill both these needs. The Program has produced fairly large numbers of medical librarians, perhaps too many relative to the current job market. Secondly, most of the younger medical librarians are graduates of NLM-supported programs. Chances are the future leaders in the field are among these graduates.

In an important sense, however, the NLM Training Grants Program has failed one of its implied but very important objectives. It has not produced persons whose job activities, job capabilities, and professional activities are substantially different from graduates of non-NLM-supported programs. It is the contention of this author that this failure was inevitable; it is seldom possible for training programs to change the way a profession organizes its activities into job positions, and decides what services and products will be performed or produced in particular job settings.

A training program can prepare persons to fulfill certain job requirements—it can teach persons to catalog, operate a circulation division, apply ADP techniques to library operations. It seldom is successful at training persons who can operate as change agents—who can change the way a job is performed or create a new job position in an existing organizational structure. Someday, for example, we may need only a few persons who can catalog books. The demand for that skill, then, will decline—not because training programs have stopped teaching it but because something like centralized cataloging has caught on.

Graduates of innovative training programs must actively seek a job that fits their training and interests. They cannot often find jobs in a library as full-time systems analysts or computer programmers. More often than not, if they want to work in a medical library they must do the rather traditional tasks still required of librarians.

Graduates of innovative programs can move from job to job hoping to find one more suited to their interests and training. They can leave the medical library setting and seek employment in information centers, in research laboratories, in environments where computer programming and/or systems analytic skills are in demand. This study provided evidence to suggest that graduates of certain NLM-supported programs were doing just that.

In one sense the NLM Training Grants Program has furthered the development of new careers for medical librarians. These careers, however, seem more apt to be found in

non-medical library settings; often they are not even associated with libraries. The Grants Program has supported the preparation of persons who can compete more successfully with information scientists, computer programmers, and systems analysts. The Program apparently has allowed many persons to escape the rather narrow confines of librarianship as currently defined and practiced. But is that what the profession wants of its training programs? Is this the way to promote the long-term advancement of medical librarianship?

A companion report will offer suggestions regarding the actions and programs that might be supported by the NLM Training Grants Program to further the medical librarianship profession. That report will discuss the probable occurrence of certain events in medicine and medical education and their probable impact on biomedical communications and biomedical librarianship. The manner in which future biomedical librarians might be trained in preparation for these impending events will be a major topic of that report.

APPENDIX A

Accession No. _____
(Do Not Write In This Space)

A SURVEY OF MEDICAL LIBRARIANS AND BIOMEDICAL COMMUNICATIONS SPECIALISTS

Form approved:
O.M.B. No. 068572164

Conducted by

The Human Resources Research Organization, Inc.
Alexandria, Virginia

Under Contract to

The National Library of Medicine
Bethesda, Maryland

1972 - 1973

Name _____

To the Respondent:

This questionnaire is a much shortened version of the original one we recently asked other graduates of librarianship or library internship programs to complete. It will take you less than an hour to fill out.

The questionnaire asks for information about the jobs you have held since you graduated from a librarianship or library internship program. You are asked to report in detail only on your present and, if appropriate, your last previous job. (Most respondents will have had only one or two jobs since graduation.)

During recent years librarians have been asked to complete a number of questionnaires. We sympathize with you. However, please bear with us. We believe the information obtained from this survey will help the National Library of Medicine decide how, in subsequent years, it can best support the education of medical librarians.

Thank you.

(Please Use Pencil to Complete Questionnaire)

Do not Record in this column

Section I PERSONAL INFORMATION

1. Name _____ (Last) (First) (Middle) (Maiden (if applicable))

2. Address _____ (Street (Apt. No., if applicable)) (City) (State) (Zip Code)

3. Place of work (If applicable) _____ (Name of Employer)
_____ (Street) (City) (State) (Zip Code)

4. Age: ☐ 1 under 25 ☐ 4 35 - 39 ☐ 7 50 - 54 ☐ 10 65+
☐ 2 25 - 29 ☐ 5 40 - 44 ☐ 8 55 - 59
☐ 3 30 - 34 ☐ 6 45 - 49 ☐ 9 60 - 64

5. Sex: ☐ 1 Male ☐ 2 Female

6. Marital Status:
   a. At present ☐ Single ☐ Married ☐ Divorced ☐ Widowed ☐ Separated
   b. At completion of MA for post-MA program ☐ Single ☐ Married ☐ Divorced ☐ Widowed ☐ Separated

56

C4

Section II EDUCATIONAL INFORMATION

7. Earned Degree: List your earned degrees chronologically, beginning with the baccalaureate degree.

Year Granted	Degree (Initials)	Name of Major Field	Institution Awarding Degree (Include state, if needed for identification)	Support Type*	Degree of Support **

* Note type of support received by recording the number code for one of the below alternatives

01. NLM Stipend (Training grant)
02. Scholarship/fellowship - Federal (non NLM)
03. Scholarship/fellowship - non-federal
04. Assistantship (research, teaching, work studies, etc.)
05. Self/family support
06. Other (specify)
07. None (use alternative 5)

** Note amount of support by recording FULL, PARTIAL or NONE

8. Have you participated in one or more library post master's degree programs? Yes ___ (1) No ___ (2)

If yes, please list in chronological order, beginning with the earliest.

Program Dates Beginning	Program Dates Ending	Sponsoring Institution	Support Type	Degree of Support ***

*** Support Received. Use same alternatives as used for Question 7.

a. Have you or are you now participating in a graduate-level program in medical librarianship? Yes __ No __

If yes... _____

Name of Program | Offering Institution | Attendance Dates

9b. Have you or are you now participating in a library internship program? Yes __ No __

If yes... _____

Name of Program | Offering Institution | Attendance Dates

_____

Name of Program | Offering Institution | Attendance Dates

10. Are you currently participating in any kind of graduate or undergraduate program which you have not already listed in Questions 7, 8, 9 above? Yes __ No __. If yes, record...

_____

Name of Program | Offering Institution | Attendance Dates

11. In addition to internships and formal programs of librarianship you may have attended a number of workshops or seminars at local universities, and continuing education courses at national, regional or local professional meetings. Would you please list below the name of (or subject(s) covered during) those training sessions which you have attended on or after January 1970. Please list only those which were of one day or more in duration.

Title/Short Description of Session | Year Attended | Length in Days

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

12. As a librarian, you probably have some ideas about the types of continuing education courses, seminars, workships, etc., which should be available to librarians. Would you please describe briefly any suggestions you have for the content of such sessions. We are especially interested in learning about continuing education requirements related to medical librarianship. However, you need not confine your suggestions to this area.

Content Description of a Suggested Continuing Education Course

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

13. Please list below membership to any honorary societies or organizations

a. _____

b. _____

c. _____

14. Please list below membership to any professional organizations--ALA, MLM, ASIS, etc.

a. _____

b. _____

c. _____

d. _____

Section III PROFESSIONAL EMPLOYMENT FORM

Section III of this questionnaire consists of two parts. In Part 1 you are asked to provide detailed information about the last two jobs you have held. Two duplicate forms have been provided for recording this information. Please report only those jobs for which you worked on at least a half-time basis or more. Also, report in detail only those jobs held since your librarianship program or internship.

In some instances you may have held more than one job within the same institution. Report each of these on a separate form.

In Part 2 of Section III of this questionnaire you are asked to provide a brief description of any job related to librarianship or information science which you held prior to the second job listed in Section III, Part 1.

15. Current Employment Status. Are you presently employed on at least a half-time basis? Yes __ No __

If no, please describe briefly the reason(s) for your current unemployment

_____

15a. Job Market Status. What would you judge to be the current status of the job market in your territorial area for persons with training and work experience similar to yours? In other words, are jobs available in.....

(1) work areas related to medical librarianship ... health science, hospital, etc., libraries

___ Many jobs available
___ Some jobs available
___ A few jobs available
___ No jobs available
___ Don't know

(2) work areas related to non-medically related libraries ... university, public, school, etc., libraries

___ Many jobs available
___ Some jobs available
___ A few jobs available
___ No jobs available
___ Don't know

Section III, Part 1a. PROFESSIONAL EMPLOYMENT HISTORY FORM

Complete this form for your present or latest held job. Report only those jobs for which you work on at least a half-time basis.

16. Position Title _____

17. Name of Employer _____

18. Employer's Address _____
Street City State Zip Code

19. Dates of Employment: Start Date (month & year) _____ End Date (month & year) _____

20. Do you consider this job to be related to medical librarianship? __ Yes, __ No, __ Uncertain

21. Approximately how many months did it take you to obtain this job? _____

22. How did you obtain this job?

____ competitive application
____ through school placement bureau
____ other (explain) _____
_____
____ recommended by (instructor, friend, etc): _____
____ already working at institution
____ promotion

23. At the time you applied for this job did you choose to stay in a medical library setting?

_____ Yes _____ No

24. At the time you applied for this job were you free to relocate in order to accept a job in librarianship?

_____ Yes _____ No If no, explain _____

25. Please complete this question as follows:

- In Column 1, list up to ten of the most important tasks performed while holding this position. Please be fairly specific. Examples: Planned and supervised the cataloging of a collection of medical drawings;
  Designed and implemented a set of ADP procedures to automate circulation records.
- In Column 2, estimate the percentage of time devoted to this task on a yearly basis. If you did not work a full year at this position estimate the percentage on the basis of the time you did work.
- In Columns 3,4,5,6, and 7, provide answers to the five questions contained on the Foldout I, rear of questionnaire. Record the number code for the selected answer in the appropriate "answers to the question" column.
- In Column 3, if you select alternative 07 (Other), specify at bottom of page.

	Task/Activity Description	% of time	Answers to Questions 1	2	3	4	5
a.							
b.							
c.							
d.							
e.							

(Continued on next page)

(1) (2) (3) (4) (5) (6) (7)

* Use only for alternative 07 (Other), Column 3. _____

_____

25. (continued)

	Task/Activity Description	% of time	Answers to Questions 1	2	3	4	5
f.							
g.							
h.							
i.							
j.							
k.							
	Column 1	(100%) Col. 2	3	4	5	6	7

26. _____ Time you actually spent working in this job. Put the number corresponding to your answer in the space provided.

1. Full Time 2. 3/4 time 3. 2/3 time 4. 1/2 time

27. _____ Beginning salary you received for this job. Record to nearest $500.00. If position was part-time, compute salary on a full-time basis.

28. _____ Highest salary received from this job. Record to nearest $500.00.

29. _____ Number of persons under your direct or general supervision. (Exclude student assistants.) Select an answer from those listed below. Put the number corresponding to your answer in the space provided.

1. None 3. 3-5 5. 10-14 7. 20-29 9. 50-99
2. 1-2 4. 6-9 6. 15-19 8. 30-49 10. 100 or more

30. Describe briefly any major research activities/projects you directed or participated in while holding this job. Example: Evaluation of a computer-based current-awareness service for community physicians. (If NONE, so indicate)

a. _____

b. _____

c. _____

31. Describe briefly any major application activities you engaged in while holding this job. Example: Automated portions of circulation system. (If NONE, so indicate)

a. _____

b. _____

c. _____

32. Describe briefly any major design or development activities you engaged in while holding this job. Example: Developed an improved thesaurus; designed a Selective Dissemination of Information System. (If NONE, so indicate)

a. _____

b. _____

c. _____

33. List the titles of any professional papers or addresses presented while holding this job. (If NONE, so indicate)

a. _____

b. _____

c. _____

Section III, Part 1b. PROFESSIONAL EMPLOYMENT HISTORY FORM

Complete this form for your second last held job. Report only those jobs for which you worked on at least a half-time basis.

16. Position Title _____

17. Name of Employer _____

18. Employer's Address _____
Street City State Zip Code

19. Dates of Employment: Start Date (month & year) _____ End Date (month & year) _____

20. Do you consider this job to be related to medical librarianship? __ Yes, __ No, __ Uncertain

21. Approximately how many months did it take you to obtain this job?

22. How did you obtain this job?

____ competitive application
____ through school placement bureau
____ other (explain) _____
_____
____ recommended by (instructor, friend, etc): _____
____ already working at institution
____ promotion

23. At the time you applied for this job did you choose to stay in a medical library setting?

_____ Yes _____ No

24. At the time you applied for this job were you free to relocate in order to accept a job in librarianship?

_____ Yes _____ No If no, explain _____

25. Please complete this question as follows:

- In Column 1, list up to ten of the most important tasks performed while holding this position. Please be fairly specific. Examples: Planned and supervised the cataloging of a collection of medical drawings; Designed and implemented a set of ADP procedures to automate circulation records.
- In Column 2, estimate the percentage of time devoted to this task on a yearly basis. If you did not work a full year at this position estimate the percentage on the basis of the time you did work.
- In Columns 3,4,5,6, and 7, provide answers to the five questions contained on the Foldout I, rear of questionnaire. Record the number code for the selected answer in the appropriate "answers to the question" column.
- In Column 3, if you select alternative 07 (Other), specify at bottom of page.

	Task/Activity Description	% of time	Answers to Questions 1	2	3	4	5
a.							
b.							
c.							
d.							
e.							

(Continued on next page)

(1) (2) (3) (4) (5) (6) (7)

* Use only for alternative 07 (Other), Column 3. _____

25. (continued)

Task/Activity Description	% of time	Answers to Questions 1	2	3	4	5
f.						
g.						
h.						
i.						
j.						
k.						
Column 1	(100%) Col. 2	3	4	5	6	7

26. _____ Time you actually spent working in this job. Put the number corresponding to your answer in the space provided.

1. Full Time 2. 3/4 time 3. 2/3 time 4. 1/2 time

27. _____ Beginning salary you received for this job. Record to nearest $500.00. If position was part-time, compute salary on a full-time basis.

28. _____ Highest salary received from this job. Record to nearest $500.00.

29. _____ Number of persons under your direct or general supervision. (Exclude student assistants.) Select an answer from those listed below. Put the number corresponding to your answer in the space provided.

1. None 3. 3-5 5. 10-14 7. 20-29 9. 50-99
2. 1-2 4. 6-9 6. 15-19 8. 30-49 10. 100 or more

30. Describe briefly any major research activities/projects you directed or participated in while holding this job. Example: Evaluation of a computer-based current-awareness service for community physicians. (If NONE, so indicate)

a. _____

b. _____

c. _____

31. Describe briefly any major application activities you engaged in while holding this job. Example: Automated portions of circulation system. (If NONE, so indicate)

a. _____

b. _____

c. _____

32. Describe briefly any major design or development activities you engaged in while holding this job. Example: Developed an improved thesaurus; designed a Selective Dissemination of Information System. (If NONE, so indicate)

a. _____

b. _____

c. _____

33. List the titles of any professional papers or addresses presented while holding this job. (If NONE, so indicate)

a. _____

b. _____

c. _____

Section III, Part 2. PROFESSIONAL EMPLOYMENT HISTORY FORM

34. List below in order beginning with the most recent, any job related to librarianship or information science which you held prior to the jobs described in Section III, Part 1.

a. Position Title _____ Employment dates: from _____ to _____
month year month year

Name of Employer _____ Full or part-time? _____

Major job duties, brief description _____

_____

b. Position Title _____ Employment dates: from _____ to _____
month year month year

Name of Employer _____ Full or part-time? _____

Major job duties, brief description _____

_____

c. Position Title _____ Employment dates: from _____ to _____
month year month year

Name of Employer _____ Full or part-time? _____

Major job duties, brief description _____

_____

d. Position Title _____ Employment dates: from _____ to _____
month year month year

Name of Employer _____ Full or part-time? _____

Major job duties, brief description _____

_____

Section III Part 3. Additional Professional Activities

35. In addition to your regular employment list any other professional activities you have engaged in such as consulting, teaching, conducting work shops, etc.

a. _____

b. _____

c. _____

d. _____

e. _____

Section IV OPINION QUESTIONNAIRE

PRESENT AND FUTURE ROLES OF MEDICAL LIBRARIANS AND BIOMEDICAL COMMUNICATIONS PERSONNEL

Listed below are statements some of which are controversial with respect to medical librarians. For each statement place a check ( ) in the space which best represents your opinion, judgment, or present belief.

	Totally Disagree	Strongly Disagree	Mildly Disagree	Neutral/No Opinion	Mildly Agree	Strongly Agree	Totally Agree
36. A librarianship program should stress librarianship or information science, and not try to combine both.	1	2	3	4	5	6	7
37. A medical librarian should be actively involved in the design and implementation of new biomedical communication systems, if in the position to do so.	1	2	3	4	5	6	7
38. A medical librarian does not need extensive formal training on the selection and use of medical documents and reference material. Knowledges and skills related to these activities can be learned on the job.	1	2	3	4	5	6	7
39. Different career ladders should exist for medical librarians and for those persons who wish to specialize in the area of information science or the technology of biomedical communications.	1	2	3	4	5	6	7

	Totally Disagree	Strongly Disagree	Mildly Disagree	Neutral/No Opinion	Mildly Agree	Strongly Agree	Totally Agree
40. If you wish to work in a medical library it is very advantageous, from the standpoint of getting a good job offer, to have completed:							
a. a degree-producing program in medical librarianship	1	2	3	4	5	6	7
b. an internship program in medical librarianship	1	2	3	4	5	6	7
c. both a degree-producing program and an internship in medical librarianship	1	2	3	4	5	6	7
41. From the standpoint of capability to perform all of the tasks required of a medical librarian, after one or two years of job experience there is no difference between persons trained at medical libraries and persons originally trained as some other type of librarian.	1	2	3	4	5	6	7

Section V THE FUTURE OF MEDICAL LIBRARIANS

42. As a practitioner in the field of librarianship or communication systems, you may have some suggestions regarding the duties and/or responsibilities which future librarians will have to assume. Would you list below some of the things you believe librarians will have to do five years from now? List things which are different in kind or in emphasis from what librarians are doing today. We are especially interested in suggestions related to medical librarianship.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

43. Presumably, the tasks which future librarians will perform will be somewhat different from those performed currently. Would you list below up to ten suggestions regarding the subject areas and/or activities which should receive special emphasis in future degree-producing and/or internship programs for librarians. We are especially interested in suggestions related to medical librarianship.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

CODE LIST

List of questions to be answered for each task/activity description recorded for Question 25.

Question 1 (Column 3) What was the general nature of the activity associated with this content area? Select the one most descriptive alternative.

01 teaching
02 research
03 user services
04 management or administration
05 development
06 public relations
07 other (specify)*

Question 2 (Column 4) How well did your MA training in librarianship prepare you for this task/activity?

01 Not applicable. No MA training in librarianship
02 Completely inadequate
03 Very inadequate
04 Somewhat inadequate
05 Adequate, but no more than average
06 Slightly better than adequate
07 Very adequate
08 Completely adequate
09 Task/activity not covered during librarianship training

Question 3 (Column 5) How well did your post-MA internship program in librarianship prepare for this task/activity?

01 Not applicable. Did not take internship program
02 Completely inadequate
03 Very inadequate
04 Somewhat inadequate
05 Adequate, but no more than average
06 Slightly better than adequate
07 Very adequate
08 Completely adequate
09 Task/activity not covered during internship

Question 4 (Column 6) In your judgment, is this an appropriate task/activity for biomedical librarians?

01 Yes, should be emphasized
02 Yes, but can be handled by others also
03 No, medical persons should do this
04 No, aids/paraprofessions should do this
05 No, information scientists, specialists should do this
06 No, other reasons
07 Not applicable

Question 5 (Column 7) How would you judge your capability at the time you performed this task/activity?

01 Horrible, little if any capability
02 Way below average
03 Slightly below average
04 Average
05 Slightly above average
06 Way above average
07 Excellent, an expert

Form approved:
O.M.B. No. 068572164

APPENDIX B

A SURVEY OF MEDICAL LIBRARIANS AND BIOMEDICAL COMMUNICATIONS SPECIALISTS

Identification of Recent Graduates

Conducted by

The Human Resources Research Organization, Inc.
Alexandria, Virginia

Under Contract to

The National Library of Medicine
Bethesda, Maryland

1972 - 73

Identification of Recent Graduates

1. Name of Institution _____

2. Name & Job Title of person completing this form:

_____

Name Job Title

3. Name and job title of employees who have graduated from a degree-producing or medical librarian internship program during or after the 1965-66 academic year. Include address only if different from address of your library. Use back of this page if additional space is required.

a. Name: _____

Address: _____

b. Name: _____

Address: _____

c. Name: _____

Address: _____

d. Name: _____

Address: _____

e. Name: _____

Address: _____

f. Name: _____

Address: _____

4. Generally speaking, how would you judge the degree to which recent graduates can perform acceptably the job activities assigned to them in your library? Check one of the alternatives listed below.

01. _____ completely below standard
02. _____ very much below standard
03. _____ slightly below standard
04. _____ meets standards, but not more than
05. _____ slightly above standard
06. _____ very much above standard
07. _____ completely above standard
08. _____ do not wish to make a judgment

5. Would you please describe briefly what, if any, weaknesses you believe exist in the current program which provide you with new graduates for positions within your library.

a. _____

b. _____

c. _____

d. _____

e. _____

6. Would you please list five content areas and/or skill or knowledge areas which in your judgment should receive special emphasis during the 1970s in programs of medical librarianship.

a. _____

b. _____

c. _____

d. _____

e. _____

Form approved:
O.M.B. No. 068572164

APPENDIX C

A SURVEY OF MEDICAL LIBRARIANS AND BIOMEDICAL COMMUNICATIONS SPECIALISTS

Employee Assessment and Training Requirements Form

Conducted by

The Human Resources Research Organization, Inc.
Alexandria, Virginia

Under Contract to

The National Library of Medicine
Bethesda, Maryland

1972 - 73

To be completed by Supervisor only

Form completed by: Name _____ Job Title _____

Supervisory relationship to employee: Immediate ____ Other ____

EMPLOYEE ASSESSMENT AND TRAINING REQUIREMENTS FORM

Assessment of Performance Capability and of Training Strengths and Weaknesses of Medical Librarians Who Have Recently Attended a Degree-producing or Post Master's Internship Program in Librarianship

To Be Completed By Supervisor Only

1. Name of Employee _____ _____ Job Title

2. Name/address of Employer _____

3. Areas of Undertraining. Would you judge this employee to be undertrained in certain areas of medical librarianship? Yes _____ (1) No _____ (2)

If yes, please list up to five areas/tasks/activities which you believe should have received more emphasis during this employee's formal training and/or internship in librarianship.

a. _____

b. _____

c. _____

d. _____

e. _____

4. Areas of Overtraining. Would you judge this employee to be overtrained in certain areas or trained to perform certain activities not relevant to the practices at your institution? Yes _____ (1) No _____ (2)

If yes, please list up to five areas/tasks/activities which you believe could have been de-emphasized during this employee's formal training and/or internship in librarianship.

a. _____

b. _____

c. _____

d. _____

e. _____

5. Capability to perform tasks associated with present job assignment.

- In column 1, list, in order of importance, up to ten of the most important tasks presently performed by this employee. Please be fairly specific. (Example: prepares budget justification for increased acquisitions.)
- In column 2, record your estimate of the percentage time devoted to this task on a yearly basis.
- In column 3, indicate the degree to which this employee can perform the task acceptably relative to other employees who now are or once did perform the task under your supervision. Record the number code for one of the alternative answers listed at the bottom of this page.
- In column 4, indicate the degree to which this employee can perform the task acceptably in accordance with what you consider to be a very high standard of excellence. Record the number code for one of the alternative answers listed at the bottom of the page.

		Col. 1 (Tasks)	Col. 2 (% time)	Col. 3 (see A below)	Col. 4 (see B below)
_____	a.		_____	_____	_____
_____	b.		_____	_____	_____
_____	c.		_____	_____	_____
_____	d.		_____	_____	_____
_____	e.		_____	_____	_____
_____	f.		_____	_____	_____
_____	g.		_____	_____	_____
_____	h.		_____	_____	_____
_____	i.		_____	_____	_____
_____	j.		_____	_____	_____

A.

Col. 3
01. Worst employee relative to this task
02. Worse than majority of employees
03. Slightly worse than average employee
04. Comparable to average employee
05. Slightly better than average employee
06. Considerably better than average employee
07. Best employee relative to this task

B.

Col. 4
01. Totally unacceptable
02. Very unacceptable
03. Below average acceptability
04. Of average acceptability
05. Slightly above average acceptability
06. Very acceptable
07. Totally acceptable

APPENDIX D

List of Activity/Action and Subject Categories
Used During Content Analysis of Task/Activity Descriptions

(See List #4, Coding Manual, page 121)

APPENDIX E

Coding Manual

A Survey of Medical Librarians and
Biomedical Communications Specialists

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	#3 Major Field(s) of Study	120
	#4 Content/Work Activity Area Descriptors & Codes	121

Field No.	Field Size	Q-Item No.	Description
1	5	0	Accession no. (4-place no. + letter. Letter represents 1st letter of school name; 1st two nos. represent accession no. of school; 4th and 5th nos. represent accession no. of a particular respondent who graduated from that school. Eg., U0508 represents the 8th respondent from UCLA.
1a	1	0	Working in a mdeical setting? 1=yes; 2=no; 3=maybe; 4=unemployed
2	6	1	KWIC name abbreviation for respondent. Eg., Plank Wm. I = PLANWI
3	8	2	Address: 1st 6 letters of city name; 2-letter abbreviation for state.
4	3	3	Name of Employer. List #1. Accession no. consisting of 1st letter of employer's name - 2 nos., e.g., Univ. of Michigan = U46
5	1	4	Age: Code nos. 1 through 9 for 1 of 9 age groups on questionnaire
6	1	5	Sex: 1 = male; 2 = female
7	1	6a	Marital status at present: 1 through 5 for one of five alternatives.
8	1	6b	Marital status at completion of training. Same as for 6a
9	1	7	1=graduated from NLM-supported school; 2=graduated from non NLM-supported school
10	1	7	1=received stipend; 2=did not receive a stipend
11	1	7or8	Record 1 through 7 to represent no. of years since respondent graduated or completed last listed librarianship or internship program.
12	2	7a1	1st degree: year granted. Record last two nos.
13	1	7a2	: type of degree. List #2. 1=place code for types of degree.

Field No.	Field Size	Q-Item No.	Description
14	3	7a3	1st degree: Major field. List #3. 3=place alpha-numeric code to represent name of a major field: eg. Social Science=S13
15	3	7a4	: Awarding institution. List #1.
16	1	7a5	: Type of support. Nos. 1-7 to represent alternatives. (Loan=5)
17	1	7a6	: Degree of support. 1=full; 2=partial; 3=none
18	2	7b1	2nd degree: Year granted.
19	1	7b2	: Type of degree. List #2.
20	4	7b3	: Major field. List #3.
21	3	7b4	: Awarding Institution. List #1.
22	1	7b5	: Type of Support
23	1	7b6	: Amount of Support
24	2	7c1	3rd degree: Year granted
25	1	7c2	: Type of degree. List #2.
26	4	7c3	: Major field. List #3.
27	3	7c4	: Awarding institution. List #1.
28	1	7c5	: Type of support.
29	1	7c6	: Amount of Support
30	1	7or8	Type of most recent training. 1=NLM-supported school; 2=non NLM-supported school; 3=NLM-supported internship; 4=non NLM-supported internship.
31	1	8	Internship support. 1=received stipend; 2=no stipend
32	1	8	Record 1 through 7 to represent no. of years since respondent graduated from listed internship or post-MA program.

Field No.	Field Size	Q-Item No.	Description
33	2	8b1	1st listed program: Program dates - record course length in months
34	3	8b2	: Sponsoring institution. List #1.
35	1	8b3	: Support type. Record 1-7 for no. of selected alternatives.
36	1	8b4	: Support received: 1=full; 2=partial; 3=none.
37	2	8c1	2nd listed program: Length of course in months
38	3	8c2	: Sponsoring institution. List #1.
39	1	8c3	: Support type
40	1	8c4	: Support received
41	1	9a	Graduate of an MA or Post-MA medical librarianship program? 1=yes; 2=no. Record as yes if requirements completed
42	1	9b	Librarianship internship programs? 1=yes; 2=no.
43	1	9a-b	Record no. of programs listed. Check questions 7,8 & 9 for duplication
44	2	9a-b	Record total no. of training months in any type of library training represented by all listed programs. (questions 7,8 &9)
45	1		Current education: Taking courses? record alternative. 1=yes; 2=no.
46	12	11a	1st listed short course: Title--develop code List #4 for content/work areas. This will be a list of descriptors each with a 4-place code. Content analyse course title & list up to 3 descriptors.
47	12	11b	2nd listed short course: Title. List #4.
48	12	11c	3rd listed short course: Title. List #4.
49	12	11d	4th listed short course: Title. List #4.
50	12	11e	5th listed short course: Title. List #4.
51	12	11f	6th listed short course: Title. List #4.

Field No.	Field Size	Q-Item No.	Description
52	2		Sum, length in days for all listed courses.
53	1		Sum, no. of courses listed
54	12	12a	1st listed continuing education requirement: Content description using List #4. Allow for 3 -4 character descriptor codes.
55	12	12b	2nd listed continuing education requirement
56	12	12c	3rd listed continuing education requirement
57	12	12d	4th listed continuing education requirement
58	12	12e	5th listed continuing education requirement
59	1		Job status: medical librarians
60	1		Job status: any library position
61	2		Number of months since leaving last training program.
62	2		Number of months between end of last training program and end of latest job.
63	1	12a-f	Sum. number of listed continuing education requirements
64	1	13	Sum. number of honorary societies and organizations listed
65	1	14	Sum. number of listed memberships in library organizations
66	1	15	Currently employed? 1=yes; 2=no
67	1	16	Present or latest job: Title. Assign code number reflecting position of job in organizational structure. 1 - director, library 2 - division head/assistant librarian 3 - unit/group head 4 - worker 5 - staff assistant 6 - project head 7 - student/intern
68	8	16	: Position function. List #4, 2 descriptors
69	3	17	: Employer's name. List #1

Field No.	Field Size	Q-Item No.		Description
70	8	18		: Employer's address. Record 1st letters of city & 2-letter abbreviation for state name
71	2	19		: Employment dates: last 2 numbers of start of year
72	2	19		: start month--record as 01 - Jan; 02 - Feb; etc.
73	2	19		: Sum. number of months on job
74	1	20		: Employment category. List A.
75	2	21		: No. of months to obtain a job.
76	1	22		: How job obtained. Record selected alternative
77	1	23		: Chose medical library work: 1=yes; 2=no.
78	1	24		: Free to relocate? 1=yes; 2=no.
79	1	24		: Reason not free: 1=married; 2=family; 3=other.
80	20	25a1	1st task description	: Description. Use List #4 to record up to 5 descriptors.
81	2	25a2		: % of time. Record number provided after rounding to nearest 5% point.
82	1	25a3		: Q-1 Nature of activity. Record selection.
83	1	25a4		: Q-2 MA program adequate? Record selection.
84	1	25a5		: Q-3 Internship adequate. Record Selection.
85	1	25a6		: Q-4 Task appropriate? Record selection.
86	1	25a7		: Q-5 Self-evaluation. Record selection.

Field No.	Field Size	Q-Item No.	Description
87	20	25b1	2nd task description : Description. List #4.
88	2	25b2	: % of time
89	1	25b3	: Q-1
90	1	25b4	: Q-2
91	1	25b5	: Q-3
92	1	25b6	: Q-4
93	1	25b7	: Q-5
94	20	25c1	3rd task description : Description. List #4.
95	2	25c2	: % of time
96	1	25c3	: Q-1
97	1	25c4	: Q-2
89	1	25c5	: Q-3
99	1	25c6	: Q-4
100	1	25c7	: Q-5
101	20	25d1	4th task description : Description. List #4.
102	2	25d2	: % of time
103	1	25d3	: Q-1
104	1	25d4	: Q-2
105	1	25d5	: Q-3
106	1	25d6	: Q-4
107	1	25d7	: Q-5
108	20	25e1	5th task description : Description. List #4.
109	2	25e2	: % of time
110	1	25e3	: Q-1
111	1	25e4	: Q-2
112	1	25e5	: Q-3

Field No.	Field Size	Q-Item No.	Description
113	1	25e6	5th task description : Q-4
114	1	25e7	: Q-5
115	20	25f1	6th task description : Description. List #4.
116	2	25f2	: % of time
117	1	25f3	: Q-1
118	1	25f4	: Q-2
119	1	25f5	: Q-3
120	1	25f6	: Q-4
121	1	25f7	: Q-5
122	20	25g1	7th task description : Description. List #4.
123	2	25g2	: % of time
124	1	25g3	: Q-1
125	1	25g4	: Q-2
126	1	25g5	: Q-3
127	1	25g6	: Q-4
128	1	25g7	: Q-5
129	20	25h1	8th task description : Description. List #4.
130	2	25h2	: % of time
131	1	25h3	: Q-1
132	1	25h4	: Q-2
133	1	25h5	: Q-3
134	1	25h6	: Q-4
135	1	25h7	: Q-5

Field No.	Field Size	Q-Item No.	Description
136	20	25i1	9th task description: Description. List #4.
137	2	25i2	: % of time
138	1	25i3	: Q-1
139	1	25i4	: Q-2
140	1	25i5	: Q-3
141	1	25i6	: Q-4
142	1	25i7	: Q-5
143	20	25j1	10th task description:Description. List #4.
144	2	25j2	: % of time
145	1	25j3	: Q-1
146	1	25j4	: Q-2
147	1	25j5	: Q-3
148	1	25j6	: Q-4
149	1	25j7	: Q-5
150	1	26	Time spent on job : Record number of selected alternative.
151	5	27	Beginning salary. Record to nearest $500.00
152	5	28	Highest salary. Record to nearest $500.00
153	1	29	Number of persons supervised. Record selected alternative
154	4	30-33 number	R & D,application, design, papers & addresses. Record listed
155	12	30-33	1st listed activity. Record up to 3 descriptors using List #4.
156	12	30-33	2nd listed activity. " " "

Field No.	Field Size	Q-Item No.	Description
157	12	30-33	3rd listed activity. Record up to 3 descriptors using List #4.
158	1	16-2	2nd listed job. : Title (Position in organization) see Field 67
159	8	16	: Position function. List #4.
160	3	17	: Employer's name. List #1.
161	8	18	: Employer's address
162	2	19	: Employment dates: Start year
163	2	19	: Start month
164	2	19	: Sum, months on job
165	1	20	: Employment category.
166	2	21	: Number of months to obtain job
167	1	22	: How obtained job
168	1	23	: Chose library work when took job?
169	1	24	: Free to relocate when took job?
170	1	24	: Reason not free to relocate.
171	20	25a1	1st task description: Description. List #4.
172	2	25a2	: % of time devoted to task
173	1	25a3	: Q-1 -- Nature of activity
174	1	25a4	: Q-2 -- Adequacy of MA program
175	1	25a5	: Q-3 -- Adequacy of intership program
176	1	25a6	: Q-4 -- Task appropriate for professional?
177	1	25a7	: Q-5 - Self-evaluation of capability

Field No.	Field Size	Q-Item No.	Description
178	20	25b1	2nd task description: Description. List #4.
179	2	25b2	: % of time devoted to task
180	1	25b3	: Q-1
181	1	25b4	: Q-2
182	1	25b5	: Q-3
183	1	25b6	: Q-4
184	1	25b7	: Q-5
185	20	25c1	3rd task description: Description. List #4.
186	2	25c2	: % of time devoted to task
187	1	25c3	: Q-1
188	1	25c4	: Q-2
189	1	25c5	: Q-3
190	1	25c6	: Q-4
191	1	25c7	: Q-5
192	20	25d1	4th task description; Description. List #4.
193	2	25d2	: % of time devoted to task
194	1	25d3	: Q-1
195	1	25d4	: Q-2
196	1	25d5	: Q-3
197	1	25d6	: Q-4
198	1	25d7	: Q-5
199	20	25e1	5th task description: Description. List #4.
200	2	25e2	: % of time devoted to task
201	1	25e3	: Q-1
202	1	25e4	: Q-2
203	1	25e5	: Q-3
204	1	25e6	: Q-4
205	1	25e7	: Q-5

Field No.	Field Size	Q-Item No.	Description
206	20	25f1	6th task description: Description. List #4.
207	2	25f2	: % of time devoted to task
208	1	25f3	: Q-1
209	1	25f4	: Q-2
210	1	25f5	: Q-3
211	1	25f6	: Q-4
212	1	25f7	: Q-5
213	20	25g1	7th task description: Description. List #4.
214	2	25g2	: % of time devoted to task
215	1	25g3	: Q-1
216	1	25g4	: Q-2
217	1	25g5	: Q-3
218	1	25g6	: Q-4
219	1	25g7	: Q-5
220	20	25h1	8th task description: Description. List #4.
221	2	25h2	: % of time devoted to task
222	1	25h3	: Q-1
223	1	25h4	: Q-2
224	1	25h5	: Q-3
225	1	25h6	: Q-4
226	1	25h7	: Q-5

Field No.	Field Size	Q-Item No.	Description
227	20	25i1	9th task description: Description. List #4.
228	2	25i2	: % of time devoted to task
229	1	25i3	: Q-1
230	1	25i4	: Q-2
231	1	25i5	: Q-3
232	1	25i6	: Q-4
233	1	25i7	: Q-5
234	20	25j1	10th task description: Description. List #4.
235	2	25j2	: % of time devoted to task
236	1	25j3	: Q-1
237	1	25j4	: Q-2
238	1	25j5	: Q-3
239	1	25j6	: Q-4
240	1	25j7	: Q-5
241	1	26	Time spent on job -- record selected alternative
242	5	27	Beginning salary to nearest $500.00
243	5	28	Highest salary to nearest $500.00
244	1	29	Number of persons supervised. Record selected alternative
245	4	30-33	R & D, application, design, papers & addresses. Record number listed
246	12	30-33	1st listed activity. Record up to 3 descriptors using List #4.
247	12	30-33	2nd listed activity. " " "
248	12	30-33	3rd listed activity. " " "
249	2		Sum, fields 250 through 253
250	1		Sum. R & D activities for both jobs

Field No.	Field Size	Q-Item No.	Description
251	1		Sum. applications for both jobs
252	1		Sum. design activities for both jobs
253	1		Sum. P & A's listed for both jobs
254	1	34a-d	Sum. number of jobs listed
255	1	34a-d	Sum. number of months of job experience represented by listed jobs.
256	1	35a-e	Sum. number of professional activities listed
257	1	36	Librarianship vs. Info. Science -- selected alternative
258	1	37	Involvement in design/implementation -- selected alternative
259	1	38	Need for formal training -- selected alternative
260	1	39	Need for different career ladder - selected alternative
261	1	40a	Advantage of degree-producing program -- selected alternative
262	1	40b	Advantage of internship program -- selected alternative
263	1	40c	Advantage of degree program + internship -- selected alternative
264	1	41	Capability difference after job experience -- selected alternative
265	16	42a	Future job duties: 1st listed duty. Record up to 4 descriptors using List #4.
266	16	42b	: 2nd listed duty
267	16	42c	: 3rd listed duty
268	16	42d	: 4th listed duty
269	16	42e	: 5th listed duty
270	16	42f	: 6th listed duty
271	16	42g	: 7th listed duty
272	16	42h	: 8th listed duty

Field No.	Field Size	Q-Item No.	Description
273	1	42a-h	Sum. total number of duties listed
274	16	43a	Training emphasis: 1st listing. Record up to 4 descriptors using List #4.
275	16	43b	: 2nd listing
276	16	43c	: 3rd listing
277	16	43d	: 4th listing
278	16	43e	: 5th listing
279	16	43f	: 6th listing
280	16	43g	: 7th listing
281	16	43h	: 8th listing
282	16	43i	: 9th listing
283	16	43j	:10th listing
284	2	43a-j	Sum. number of areas listed as in need of training emphasis
285	2	25a-k	Present or last job: Category I. % of task descriptors that fall into each of nine content/ activity
286	2	25a-k	: Category II. Areas. Record to nearest 5%.
287	2	25a-k	: Category III
288	2	25a-k	: Category IV
289	2	25a-k	: Category V
290	2	25a-k	: Category VI
291	2	25a-k	: Category VII
292	2	25a-k	: Category VIII
293	2	25a-k	: Category IX

Field No.	Field Size	Q-Item No.		Descript...
294	2	25a-k	2nd listed job	: Category I
295	2	"		: Category II
296	2	"		: Category III
297	2	"		: Category IV
298	2	"		: Category V
299	2	"		: Category VI
300	2	"		: Category VII
301	2			: Category VIII
302	2	"		: Category IX
303	2	"	All listed jobs	: Category I
304	2	"		: Category II
305	2	"		: Category III
306	2	"		: Category IV
307	2	"		: Category V
308	2	"		: Category VI
309	2	"		: Category VII
310	2	"		: Category VIII
311	2	"		: Category IX
312	1	11a-f	Number of jobs since graduating	

SPECIAL CODING INSTRUCTIONS

General

1. If responses are in wrong space, make correction in right place; for example, if professional activities are recorded in "short course" portion of questionnaire, code in proper place, item 35;

2. Code responses in left margin when possible; if not, code directly above or alongside of responses. Exception: if response is already coded on questionnaire

3. Use "0" when "None" is the answer recorded on the questionnaire.

4. Need to code two kinds of "missing information":

   a. Y = missing but should be there.

   b. Z = incorrect or inappropriate information.

   c. Line out all other missing information on code sheets.

5. If item is left blank when a listing of activities is asked for, code as "Y". Code as "0" if "none" is the response given.

6. Don't slash zeros. Takes too much time, and very few "0s" are coded.

SPECIAL CODING INSTRUCTIONS

Specific

Field No.	Q-Item No.	
1	0.	Use maiden name initial in preference to middle name initial for married women.
3	2.	Address -- allow 8 characters; xxx out last 2 spaces, e.g., Ames, Iowa = AMESXXIA.
3	2.	If city begins with East, South, North or West, use only first letter, e.g., East Orange, New Jersey = EORANGNJ.
3	2.	For "Saint" or "Santa" use ST.
3	2.	Foreign addresses: code city and country only. Do not include province, sector, state, etc.
4	3.	For employers who have common names, e.g., St. Joseph's Hospital, add name of city and state where located into the code book; e.g., St. Joseph's Hospital, Patterson, N.J. Each name/location combination gets its own code number.
11	7.	If respondent graduated in 1972, count as one year since graduation if month given is January, February, or March. If no month is given, but work history shows person started working 9 or more months since getting degree, also count as one year since graduation. If otherwise, code as "0".
11	7.	Use return date on questionnaire as the base month for determining number of years since graduation. Use June as the month of graduation when respondent simply lists the year of graduation.
12	7a1.	If respondent has finished all or most of course requirements but still has thesis to complete, record year course requirements apparently were completed.

Field No.	Q-Item No.	
14	7a3	If more than one major field is listed, record first one listed.
15	7a4	Institutions awarding degrees vs. employers within same institutions. If a person graduated from Syracuse University and is now employed by the Syracuse Educational Institute, make sure that different employer codes are assigned to the University and the "Institute".
16/17	7a5/a6	When two or more kinds of support are listed, one of which includes "self-family support" (05), code only the other kind of support listed. Also: • if 7a5 is coded as solely 05, then 7a6 must be coded as "none" "3". • when two or more kinds of support are listed, the degree of support (7a6) must be coded as partial (2).
20/26	7b3/7c2	Use only first 3 of 4 spaces (3 characters).
41/42	9/9a	If respondent answered "yes" to questions 9a and 9b, make sure the courses listed are not part of the MA and/or post MA internship program listed on questions 7 and 8.
43/44	9a/9b	Include all completed programs (Items 7 & 8) plus any programs still not completed. Sum the months for each program, including ongoing programs listed under current education (Item 10).
44	9a/9b	Use 10 months as the total training time for Masters degree programs; use 12 months as the total training time for internship programs. Use this guidance unless specific lengths were given for these programs by the respondents.
68	16	If the job title is given as "librarian" a judgment should be made, on the basis of the task listings, as to whether or not the respondent is head of a library unit, or even of the whole library itself.

Field No.	Q-Item No.	
71-72	19	If no day is given, consider start month to be the beginning of the month.
76	22	If more than one alternative is indicated, select the one which seems most appropriate. If both "already working at the institution," and "promotion" are selected, record as "promotion." Record all types of applications or replies to ads as "1".
78	24	If relocation is contingent upon a special situation, e.g. husband works in Chicago, record as "2" (not free to relocate).
79	24	If answer is "no" (2) and no explanation is given, record "y" in firld 79.
81	25a2	When the percentage of time listed for all tasks does not add up to 100%, the remainder should be listed as "unaccounted for" time. Record this as a separate entry, coded "1900" and assign the "unaccounted for" time to it.
137	16	Do not record any position titles which are associated with jobs held during training, such as assistantships, fellowships, internships, etc. Check dates of attendance for MA and/or internship training, if uncertain.
147	23	"Chose" means "preferred." Some persons may choose to remain in library work, but could not find a job in a library setting. For such cases, code as "yes" (1).
255	34a-d	Consider "part-time" as equivalent to "half-time." If only years are given, consider a whole year as 12 months, e.g., 1963-64 = 12 months; 1963-65 = 24 months.
255	34a-d	Do not count internship program as a job. Rather, count it as an educational or training program. Exception: treat a VA internship as a job.

ADDRESS ABBREVIATIONS

Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Canada	CN
Canal Zone	CZ
Colorado	CO
Columbia	CL
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Guam	GU
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Israel	IS
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Maryland	MD
Massachusetts	MA
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Puerto Rico	PR
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Vermont	VT
Virginia	VA
Virgin Islands	VI
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY

List #1

Names of Universities/Colleges & Employer Institutions

"A"

A01 Alergan Pharmaceuticals
A02 American Medical Association Library
A03 Akron Public Library
A04 Alton Ochsner Medical Foundation
A05 Allegheny-Meadville (College), Pa.
A06 American University, Washington, D.C.
A07 Abbott Laboratories, North Chicago, Ill.
A08 Augustana College, Rock Island, Ill.
A09 Atlanta University, Atlanta, Ga.
A10 Abbott-Northwestern Hospital, Inc. Minn. (Health Sciences Library)
A11 Albert Einstein Medical Center, Daroff Div., Philadelphia, Pa.
A12 A and T State University (N.C.), Greensboro
A13 Albert Einstein College of Medicine Library
A14 Auburn University, Al.
A15 Aquinas, Mich.
A16 Albany Medical College, Schaffer Library of Health Sciences, N.Y.
A17 Agnes Scott College, Ga.
A18 Akron University, Akron, Ohio

"B"

B01 Burr Artz Public Library
B02 Becker and Hayes, Inc. (Library Systems Analyst)
B03 Ball State University (Health Services Library)
B04 Bay View Hospital
B05 Baltimore Jr. College, Md.
B06 Brooklyn College, N.Y.
B07 Bowdoin College
B08 Bowman Gray School of Medicine Library, Winston-Salem, N.C.
B09 Brigham Young University
B10 Boston Collaborative Drug Surveillance Program, Waltham, Mass.
B11 Boston University School of Medicine
B12 Boston University
B13 Bowling Green University, Ohio
B14 Bishop's University, Lennoxville, Quebec, Canada
B15 Barnard College (Columbia U), N.Y.
B16 Board of Education, Brookfield, Ill.
B17 Biblioteca de la Fucultud de Medicina, Universitad, Bogota, D.E., Columbia
B18 Beaver College, Glenside, Pa.

"C"

C01 Center for Research Libraries
C02 Chevron Research Center (Technical Library)
C03 Continental Can Co.
C04 Childrens Hospital, Chicago, Ill.
C05 Case Western Reserve University
C06 Chicago Medical School
C07 Chicago Public Library
C08 Case Western Reserve University (School of Nursing)
C09 Case Western Reserve University (NLM)
C10 Cleveland Health Science Library, Case Western Reserve
C11 Countway Library
C12 Cleveland State University
C13 Cargill, Inc.
C14 Central Washington State College
C15 College of St. Teresa, Winona, Minn.
C16 Cornell University, Ithica, N.Y. (see C41)
C17 Carolina Population Center
C18 Case Western Reserve
C19 Calvin College, Grand Rapids, Mich.
C20 Columbia University, N.Y. (see C34 and C38)
C21 Carleton College, Northfield, Minn.
C22 Cornell College, Mt. Vernon, Iowa
C23 California Hospital Medical Center, Los Angeles
C24 Chestnut Hill College, Pa.
C25 Campus Computing Network, UCLA
C26 Catholic University
C27 Ceders of Lebanon Hospital, Hollywood, Calif.
C28 California State University, Long Beach
C29 California State University, Northridge Library (see C51)
C30 College of St. Benedict, Minn.
C31 Creighton University, Omaha, Neb.
C32 College of Great Falls, Montana
C33 Carthage College, Wisconsin
C34 Columbia University (Library School)
C35 College of Medicine and Dentistry of J.J., Newark, Library (see C40)
C36 Connecticut State Library, Hartford
C37 College of Mt. St. Joseph-on-the-Ohio (Ohio)
C38 Columbia University (N.Y.) Systems Office
C39 College of Idaho
C40 College of Physicians of Philadelphia, Pa.
C41 Cornell University Medical College Library (N.Y.)
C42 Colorado College
C43 Columbia University, Teachers College
C44 Columbia Union College, Takoma Park, Md.

C45 City College of New York
C46 Central State University, Edmond, Oklahoma
C47 Clayton Jr. College, Morrow, Georgia
C48 California State Polytechnic University (Kellog-Vooghis Campus)
C49 Childrens Hospital of Los Angeles, Calif.
C50 College of William and Mary
C51 California State University, Northridge (see C29)
C52 Concordia College, Moorhead, Minn.

"D"

D01 Dakota State College
D02 Detroit General Hospital
D03 Department of Water and Power, City of Los Angeles (Information Systems Development)
D04 Department of the Interior Library
D05 David Lipscomb College, Nashville, Tenn.
D06 Department of Agriculture
D07 Duchesne College, Omaha, Nebraska
D08 Delta State College, Cleveland, Mississippi
D09 Denison University, Granville, Ohio
D10 DePauw University
D11 Dakota State College Library
D12 Douglass College, Rutgers University, New Brunswick
D13 Dow Chemical Co., Midland, Michigan
D14 Drexel University, Philadelphia, Pa.
D15 Duke University, Medical Center Library, Durham, N.C.
D16 Duke University School of Nursing Library, Durham, N.C.

"E"

E01 Emmanual College, Boston, Mass.
E02 Eli Lilly and Co., Agricultural Div., Greenfield, Indiana
E03 Edinboro State College, Edinboro, Pa.
E04 Emory University, Atlanta, Georgia, A.W. Calhoun Medical Library
E05 Emory University
E06 Elizabethtown College, Pa.
E07 Eastern Seminary, Philadelphia, Pa.
E08 Eli Lilly and Co., Indianapolis, Ind.
E09 Elmira College, Elmira, N.Y.
E10 Eastern Illinois University

"F"

F01	Florida State Division of Health
F02	Frederick County Public Library, Frederick, Md.
F03	Florida State University
F04	Florida Atlantic University
F05	Federal City College, Washington, D.C.
F06	Fletcher Free (Public) Library, Burlington, Vt.

"G"

G01	General Electric, Erie, Pa.
G02	Greenwich Hospital
G03	G.D. Searle & Co., Chemical & Medical Documentation
G04	Geigy Pharmaceuticals
G05	George Peabody College, Nashville, Tennessee
G06	Greater Plains School Library, Oneonta, N.Y.
G07	General Motors Research Laboratories Library, GM Tech. Center, Mich.
G08	Gustavus Adolphus College, Minnesota
G09	Gettysburg College, Pa.
G10	Geigy Chemical Corp.
G11	Grinnell College, Iowa
G12	Georgia Mental Health Institute, Atlanta
G13	Grove City College
G14	Grasslands Hospital, Valhalla, N.Y.
G15	Georgia Institute of Technology, Atlanta (Library)

"H"

H01	Hendersonville, N.C. (Board of Education)
H02	Hendersonville, N.C. (County Public Library)
H03	Hennepin County Medical Society, Minneapolis, Minn.
H04	Hawaii Medical Library, Inc., Honolulu
H05	Hampden-Sydney College, Virginia
H06	Harding College, Searey, Arkansas
H07	Harbor General Hospital, County of L.A., California
H08	Hudson Valley Community College, Troy, N.Y.
H09	Hunter College, N.Y.
H10	Hellmuth, Obata, & Kassabaum Architects (St. Louis, Mo.)
H11	Howard University, Medical-Dental Library, Washington, D.C.
H12	Howard University, Washington, D.C.
H13	Heidelberg College, Ohio
H14	Hope College, Holland, Michigan
H15	Hood College, Frederick, Md.
H16	Hartline School District #128

H17 Highland Hospital School of Nursing, Oakland, California
H18 Houston Academy of Medicine Library, Texas Medical Center
H19 Hiram College, Hiram, Ohio
H20 Hanover College, Indiana
H21 Huntington College, Alabama
H22 Holy Name College, California
H23 Houghton College, N.Y.

"I"

I01 IBM
I02 Illinois Institute for Environmental Quality (Information Services)
I03 Iowa State University Library
I04 Institute for Scientific Information
I05 Indiana University
I06 Iowa State University
I07 Iberia Parish School Board, New Iberia, Louisiana
I08 Indiana University School of Medicine Library, Indianapolis, In.
I09 Illinois State University
I10 Illinois Regional Medical Program, Chicago

"J"

J01 Johns Hopkins University (NLM) Welch Medical Library
J02 Jefferson Medical College
J03 John Crerar Library, Chicago, Ill. (Midwest Regional Medical Library)
J04 Johns Hopkins Medical Institutions (Information Center for Speech, Hearing, and Disorders of Human Communication)
J05 Jersey City Public Library
J06 Johns Hopkins University
J07 Jacksonville State, Alabama

"K"

K01 W. K. Kellogg Health Sciences Library, Dalhousie University, Nova Scotia, Canada
K02 Kent State University, Kent, Ohio
K03 Kaiser Foundation Hospital, Walnut Creek, California
K04 Kimberly-Clark Corporation, Neenah, Wisconsin

"L"

L01 Laval University Library
L02 Library Project RMP
L03 Lovelace Clinic Foundation
L04 Lorain Community College Library
L05 Loyola University, Chicago
L06 Louisiana State University
L07 Long Island University
L08 Lebanon Valley College, Pa.
L09 Lewis and Clark College, Portland, Ore.
L10 Los Angeles County Medical Association Library
L11 LeMoyne College, N. Y.
L12 Latter Day Saint Hospital, Medical Library, Salt Lake City, Utah
L13 Lake Forest College, Ill.
L14 Lakeland Village Libraries (Spokane County Library) Medical Lake, Wash. (Ment. Retard. Institution)
L15 LaMarque ISP Library, LaMarque, Tex.
L16 Loyola Univ. Medical Center Library, Maywood, Idaho

"M"

M01 Mount Sinai School of Medicine, New York, N. Y. (Basic Sciences Library)
M02 Medical College of Virginia (Tompkins-McCaw Library)
M03 Monterey Institute of Foreign Studies
M04 Michigan State University (Instructional Center for Handicapped Children
M05 Memorial Medical Center, Corpus Christi, Tex.
M06 Metropolitan General Hospital
M07 Makerrerre University (School of Medicine)
M08 Mount Sinai Hospital, Minn.
M09 Marquette University (Medical-Dental Library)
M10 Minnesota Mining & Manufacturing Co.
M11 Massachusetts Institute of Technology (Science Library)
M12 The Milton S. Hershey Medical Center Library, Hershey, Pa. (Penn. St. Univ.)
M13 Memphis Regional Medical Program
M14 Miami University, Oxford, Ohio (King Library)
M15 Midwest Regional Medical Libraries Association
M16 Medical Library Association
M17 Macalester College, St. Paul, Minn.
M18 Mayo Clinic Library, Rochester, Minn.
M19 Michigan State University (Regional Instructional Materials Center)

M20 Monmouth College, Monmouth, Ill.
M21 Morehouse College, Atlanta, Ga.
M22 Medical College of Wisconsin, Milwaukee (Medical-Dental Library)
M23 Mount Sinai Hospital, New York, N. Y.
M24 Malcolm X College Library, Chicago
M25 Missouri, Univ. of (NLM)
M26 Marietta College, Marietta, Ohio
M27 Massachusetts College of Optometry, Boston, Library
M28 Michigan State University
M29 Medical University of South Carolina, Charleston
M30 Mount Holyoke
M31 Missouri Institute of Psychiatry, St. Louis
M32 Mt. Sinai Hospital, Cleveland
M33 Murray State Univ., Kentucky
M34 Miles College, Birmingham, Ala.
M35 Medical College of Georgia Library, Augusta
M36 Mount Sinai Services, City Hospital Center, Elmhurst (Queens), N. Y.
M37 Mary Washington College, Va.
M38 Marquette University
M39 Maryhurst College, Ore.
M40 Miles Laboratories, Elkhart, Ind.

"N"

N01 National Institutes of Health
N02 National Library of Medicine
N03 Northwestern University (Biomedical Communications Research Program)
N04 NELINET
N05 Northwestern Hospital
N06 National Animal Disease Laboratory
N07 National Bureau of Standards
N08 NIH/DRS/LB
N09 NIH, Division of Computer Research
N10 NIH, Bethesda
N11 New Mexico State Library
N12 State University of New York, at Geneseo
N13 Northwestern University (see N17 also)
N14 Northern State Teachers College
N15 Northwestern Hospital School of Nursing, Minn.
N16 National Center for Toxicological Research (DHEW/PHS/FDA), Jefferson, Ark.
N17 Northwestern University, Dental School Library, Chicago
N18 Notre Dame College of Ohio

N19 New York State (Education Dept.,) Medical Library, Albany
N20 Newark Public Library, N. J.
N21 N.Y.U., New York, N. Y.
N22 Neuropsychiatric Institute Library, UCLA
N23 North Carolina Central Univ., Durham
N24 Nassau County Dept. of Health Library, Mineola, N. Y.
N25 National Medical Audiovisual Center (USHEW), Atlanta, Ga.
N26 New York State Dept. of Health Library, Albany
N27 Northwestern State Univ., Natchitoches, La.
N28 Northwestern Univ. Medical Library, Chicago, Ill.
N29 Northern Illinois University
N30 Nazareth College of Rochester, N. Y.
N31 New Mexico Regional Medical Program, Albuquerque, N. M.
N32 New York Medical College - L. M. Hetrick Library (Flower & Fifth Ave. Hosp.)

"O"

001 Ortho Pharmaceutical Corporation (Research Library)
002 Ohio State University College of Medicine, Health Center Library, Columbus
003 Omaha Public Library
004 Oberlin
005 Oakland University, Kresge Library
006 Ohio State University
007 (The) Orme School, Mayer, Ariz.
008 Ohio Northern Univ.
009 Occidental College, Los Angeles
010 Ohio University
011 Ohio University, Alden Library (non-medical), Athens, Ohio
012 Our Lady of the Lake College, San Antonio, Texas
013 Our Redeemer Lutheran School, Honolulu, Hawaii
014 Ohio Dominican College

"P"

P01 Pasadena City College
P02 Penn. State Univ.
P03 Purdue University
P04 Parkland College Learning Resource Center, Champaign, Ill.
P05 Pomona College
P06 Presbyterian Medical Center, Denver, Colo.

P07 Pasadena College, Calif.
P08 Penrose Public Library, Colo. Springs, Colo.
P09 Polish University, London, England
P10 Portland State Univ., Portland, Ore.
P11 Pratt Institute, N. Y.
P12 Providence College, Taichung, Taiwan

"Q"

Q01 Quincy College, Ill.
Q02 Queens College, New York, N. Y.

"R"

R01 Regional Medical Library Program, John Crerar Library, Chicago, Ill. (use J03)
R02 Robert Packer Hospital, Sayre, Pa.
R03 Raymond W. Bliss Army Hospital, Ft. Huachuca, Ariz.
R04 Ramsey County Medical Society Library
R05 Regional Medical Program (RMP)
R06 Rutgers University, N. J.
R07 Rosary College, River Forest, Ill.
R08 Raymond College, Univ. of the Pacific, Calif.
R09 Riverside Methodist Hospital, Columbus, Ohio
R10 Rombout Middle School Library, Beacon, N. Y.
R11 Rush Foundation Hospital, Meridian, Miss.
R12 Rosemont College, Pa.
R13 Russell Sage, N. Y.
R14 Rosary College Graduate School of Library Sciences, River Forest, Ill.
R15 Rider College, Trenton, N. J.

"S"

S01 Southern Illinois University (School of Dental Medicine Biomedical Library and Morris Library)
S02 St. Francis Hospital Library, Peoria, Ill.
S03 St. Joseph Hospital, Patterson, N. J.
S04 St. Vincent Hospital, State Medical Library
S05 Syracuse University Library School and Library School
S06 St. Paul Public Library

S07 St. Cloud State College
S08 Sioux Falls College
S09 San Fernando Valley State College (same as Calif. State Univ., Northridge)
S10 St. Luke's Hospital (School of Nursing, Bethlehem, Pa.)
S11 St. Mary's Junior College
S12 St. Louis Medical Society Library
S13 St. Louis Public Library
S14 Syracuse Univ.
S15 S.U.N.Y. Upstate Medical Center, Syracuse, N. Y.
S16 Southwestern at Memphis, Tenn.
S17 Samford University, Birmingham, Ala.
S18 Sacramento State College, Sacramento, Calif.
S19 System Development Corporation, Santa Monica, Calif.
S20 St. Joseph's Hospital, Milwaukee, Wis.
S21 St. John's Univ., Minn.
S22 Shippensburg State College, Pa.
S23 Sparks Regional Medical Center (Regional Health Sciences Library)
S24 Siena College, Memphis, Tenn.
S25 Santa Rosa Medical Center, San Antonio, Tex., Medical Library
S26 Sogang University, Seoul, Korea
S27 San Jose State Univ., San Jose, Calif.
S28 San Diego State College
S29 S.U.N.Y. at Albany, New York (Library plus School)
S30 S.U.N.Y. at Buffalo, Health Sciences Library (see S41)
S31 Simmons College, Boston, Mass.
S32 Southern Connecticut State College
S33 Stanford Univ. Calif.
S34 Swathmore Colege
S35 St. Mary's College, South Bend, Ind.
S36 St. Mark's Hospital, Salt Lake City, Utah
S37 Stetson University, Fla.
S38 Schenectady Community College Library, N. Y.
S39 Scientia Laboratories, Seattle, Wash.
S40 S.U.N.Y. at Cortland
S41 S.U.N.Y. at Buffalo
S42 St. Joseph's Hospital, Chicago, Ill.
S43 Sandia Laboratories Library, Sandia Base, Albuquerque, N. M.
S44 State College at Westfield, Mass.
S45 St. Norbert College, W. DePere, WI
S46 Scripps College, Calif.
S47 St. Mary's Health Center, St. Louis, Mo.
S48 St. Louis University, St. Louis, Mo.

"T"

T01 Tufts University Library (Medford, MA)
T02 Texas Medical Center Library (Houston, TX)
T03 TALON Regional Medical Library Program, Univ. of Texas, Medical School at Dallas
T04 Trinity College, Washington, D. C.
T05 Texas Christian Univ.
T06 Transylvania Univ., Lexington, Ky.
T07 Texas Tech. Univ.
T08 Trenton State College - Roscoe L. West Library
T09 Texas A and M - Library, College Station
T10 Temple University
T11 Texas Woman's University

"U"

U01 University of Alabama (Lister Hill Library of the Health Sciences)(See U146)
U02 University of Arizona (Arizona Medical Center Library)
U03 University of California-Berkeley (Public Health Library)
U04 University of California-Berkeley (School of Librarianship)
U05 University of California-Irvine (School of Medicine)
U06 University of California-Irvine (Medical Science Library)
U07 University of California-L.A. (Intern Biomedical Library)(NLM)
U08 University of California-L.A. (Brain Information Service)
U09 University of California-L.A. (Campus Computing Network)
U10 University of California-L.A. (Graduate Training Program) (NLM) (Systems Analyst Program)
U11 University of California-San Diego (Technical Processing)
U12 University of California-San Diego (Biomedical Library)
U13 University of California-San Francisco Library
U14 University of California-Santa Barbara, Sciences-Engineering Library
U15 University of California-Riverside, Bio-Agricultural Experiment Station
U16 University of Chicago (NLM) (Graduate Library School)
U17 University of Chicago (NLM) (Library)
U18 University of Cincinnati
U19 University of Cincinnati Medical Center Library
U20 University of Cincinnati Medical School
U21 University of Connecticut (Lyman Maynard Stowe Library)
U22 University of Connecticut Health Center Library, Hartford
U23 University of Delaware (Agriculture Library)
U24 University of Florida (J. Hillis Miller Health Center Library)

U25 University of Ghana Medical School
U26 University of Illinois Medical College
U27 University of Illinois at the Medical Center, Eye and Ear Infirmary
U28 University of Illinois (NLM) (See U71, U113)
U29 University of Iowa (Medical Library)
U30 University of Kentucky (Medical Center Library)
U31 University of Louisville (School of Medicine, The Kornhauser Health Sciences Library
U32 University of Maryland (Health Sciences Library, Baltimore
U33 University of Massachusetts (Medical School Library)
U34 University of Massachusetts Medical Center
U35 University of Minnesota (Biomedical Library)(NLM)
U36 University of Minnesota (Mathematics Library)
U37 University of Minnesota (Museum of Natural History Library)
U38 University of Minnesota (Family Study Center, Inventory of Marriage and Family Research
U39 University of Missouri (Medical School Library) (Columbia) (See UM-KC Med. Lib. U129)
U40 University of Nebraska Medical Center, College of Medicine Library)
U41 University of Nebraska Libraries (Science and Technology Division)
U42 University of New Mexico (Library of the Medical Sciences) (Zimmerman Library)
U43 University of Pittsburgh (Maurice & Laura Falk Library of the Health Professions (See U63, U153)
U44 University of Puerto Rico (Medical Sciences Campus, Laboratory of Neurobiology)
U45 University of Rochester (School of Medicine and Dentistry, Edward C. Miner Library)
U46 University of Tennessee Medical Units (Library)
U47 University of Tennessee Medical Units (Postgraduate training program)(NLM)
U48 University of Texas Medical Branch
U49 University of Texas (School of Public Health)
U50 University of Texas (Branch Library)
U51 University of Texas (Medical Branch Library)
U52 University of Texas (Health Science Center at Dallas (See U120)
U53 University of Texas TALON Regional Medical Library Program)
U54 University of Utah (Eccks Medical Sciences Library)
U55 University of Washington (Health Sciences Library)
U56 University of Wisconsin (Middleton Medical Library)
U57 UNIVAC
U58 U.S. Fish and Wildlife Service, Ft. Snelling, Twin Cities, Minn.
U59 U.S. Government Agency
U60 U.S. Naval Hospital
U61 U.S. Office of Education

U62 Univ. of Calif. LaJolla, Calif.
U63 Univ. of Pittsburgh (See U43, U153)
U64 Univ. of Kentucky
U65 Univ. of Minnesota
U66 Univ. of Michigan, Ann Arbor
U67 Univ. of Pennsylvania Medical School Library
U68 Univ. of Colorado Medical Center-Denison Memorial Library
U69 Univ. of Negev, Beesheva, Israel
U70 Univ. of Chicago (See U16, U118)
U71 Univ. of Illinois (See U113)
U72 Univ. of Nebraska
U73 Univ. of North Carolina, Chapel Hill (See U141)
U74 U.S. Naval Academy, Annapolis, Md.
U75 Univ. of Washington, Seattle
U76 Univ. of Wisconsin, Madison
U77 Univ. of Richmond (Va.), Westhampton College
U78 Univ. of Maryland
U79 Univ. of Indiana
U80 UCLA
U81 Univ. of Calif. - Santa Barbara
U82 Univ. of Wisconsin-Milwaukee (Lib. Sci. School in Milwaukee)
U83 U.S. Fish and Wildlife Service-Great Lakes Fishery Lab., Ann Arbor, Mich.
U84 University of Missouri, Science Library, Columbia
U85 University of San Francisco
U86 University of Utah
U87 Univ. of California-Davis (See U107 below)
U88 Univ. of Montana
U89 Univ. of Oregon (See U133)
U90 Univ. of Texas
U91 Univ. of Southern California
U92 Univ. of Southern Calif. School of Medicine
U93 Univ. of Virginia Medical Library, Charlottesville
U94 Univ. of Arizona College of Medicine
U95 Univ. of Georgia, Athens
U96 Univ. of North Carolina, Greensboro
U67 Univ. of Rochester (See U136)
U98 Univ. of Calif.-Berkeley
U99 Univ. of Minnesota School of Medicine
U100 Univ. of Denver, Colo.
U101 Univ. of Iowa
U102 Univ. of Virginia
U103 Univ. of Hawaii
U104 Univ. of Tennessee
U105 Univ. of Arizona
U106 (Use U97; see U136)
U107 Univ. of Calif.-Davis - Health Sciences Library

U108 Univ. of Mississippi School of Medicine, Jackson, Miss. - Rowland Medical Library
U109 Univ. of Mississippi
U110 Univ. of Calif.-Irvine
U111 Univ. of Missouri, Columbia (See M25 for NLM Program)
U112 Univ. of Florida
U113 Univ. of Illinois at the Medical Center, Health Sciences Library, Chicago
U114 Univ. of Missouri, St. Louis
U115 Univ. of Toledo
U116 Univ. of Oklahoma
U117 Univ. of Manitoba Library, Winnepeg, Canada
U118 Univ. of Chicago Biology Library
U119 Ursuline College for Women, Ohio
U120 University of Texas Health Science Center, San Antonio
U121 University of Maine
U122 University of South Carolina (Library), Columbia (See U144)
U123 University of Vermont, Burlington, Dana Medical Library
U124 University of Budapest
U125 Univ. of Mississippi Pharmacy Library, University, Miss.
U126 Univ. of Southern Mississippi
U127 University of Pennsylvania
U128 University of the Philippines
U129 Univ. of Missouri-Kansas City (Medical Library)
U130 Univ. of Pennsylvania, Ob-Gyn Dept., Med. Labs.
U131 Univ. of Louisville (Ky.)
U132 Ursinus College, Pa.
U133 University of Oregon Medical School Library, Portland
U134 Univ. of Rhode Island, Kingston, R.I. Library
U135 Univ. of Toronto (Canada)
U136 (U45)
U137 Univ. of Chicago - Industrial Relations Center
U138 University of Buffalo
U139 Univ. of Wyoming
U140 Univ. of New Mexico
U141 Univ. of North Carolina Health Sciences Library, Chapel Hill
U142 Univ. of Oklahoma Health Sciences Center Library, Okla. City
U143 Univ. of Puget Sound, Tacoma, Wash.
U144 Univ. of South Carolina, Columbia
U145 The Upjohn Company, Kalamazoo, Mich.
U146 Univ. of Alabama
U147 University of the East, Philippines
U148 U. of Mich. Center for Research on Economic Development, Ann Arbor
U149 University of North Dakota, Grand Forks
U150 University of Colorado

U151 University of Texas Dental Branch, Houston
U152 University of Connecticut, Hartford
U153 Univ. of Pittsburgh, Graduate School of Public Health Library (See U43, U63)
U154 Univ. of Delaware
U155 Univ. of Santo Tomas, Manila, Philippines
U156 Univ. of Hong Kong
U157 Univ. of Notre Dame, Notre Dame, Ind. Life Sciences Research Library
U158 U.S. Center for Disease Control, Atlanta, Ga.
U159 Univ. of South Dakota
U160 Univ. of Michigan Medlars Center, Ann Arbor

"V"

V01 Virginia Commonwealth University
V02 Veterans Administration Center, Jackson, Miss.
V03 Vassar College, N. Y.
V04 Veterans Administration Hospital (Atlanta) Decatur, Ga.
V05 Veterans Administration Hospital, Mines, Ill.
V06 Veterans Administration, Washington, D. C. - Central Office Library
V07 Veterans Administration Hospital, Cleveland, Ohio
V08 Veterans Administration Hospital (Psychiatric), Brecksville, Ohio
V09 Villa Maria College, Erie, Pa.
V10 V.A. Hosp., Columbia, Mo.
V11 Villanova Univ., Pa.
V12 Vanderbilt Univ., Nashville, Tenn.
V13 Vanderbilt Medical Center Library, Nashville, Tenn.

"W"

W01 Wood Library-Museum of Anesthesiology, Inc.
W02 Western Illinois University (Memorial Library)
W03 West Virginia University School of Medicine, Medical Center Library
W04 Wisconsin State University
W05 Washington University School of Medicine (NLM) (Internship)
W06 Wake Forest University (Graduate School of Business Library)
W07 Wake Forest University (Bowman Gray School of Medicine, Allied Health Programs Library)
W08 Wayne State University (Medical Library)(NLM)
W09 Wayne State University (Kentucky, Ohio, Michigan Regional Medical Library)

W10 Waldolf Hotel, N.Y.
W11 WPVL Radio
W12 Wright State Univ. Dayton, Ohio
W13 Washington Univ., St. Louis
W14 Wellesley college, Mass.
W15 Wayne State University
W16 Wilford Hall USAF Medical Center, Lackland AFB, San Antonio, Texas
W17 Westmar College, Iowa
W18 Wabash College, Crawfordsville, Ind.
W19 Willamette University, Salem, Ore.
W20 Western Michigan University
W21 Walsh College Library
W22 Walpole Senior High School, Walpole, Me.

"Y"

Y01 Yale Medical Library
Y02 Yale University
Y03 Youngstown State, Youngstown, Ohio

List #2

TYPES OF DEGREES

1 AA

2 BA/BS

3 MA/MLS

4 PhD

5 Other

Content/Work Activity Area Descriptors & Codes

ABILITE
List #4

9 March/73

1000 Major Activity/Action Categories

1100 Activity/Action Categories Related to Library Tasks

1101 Consultant, usually to field libraries
1102 Coordinate/represent/act as liaison
---- Contracting (for a job to be done -- use 1105 & 2103)
1103 Decision making/problem solving
1104 Design/plan/analyze/research -- in sense of developing plans and/or designs for something that does not exist. Includes analysis of existing operations to look for ways to improve them.
1105 Develop/implement/prepare/create/etc. -- in sense of developing or implementing something that already has been planned, designed, modeled. Includes development of training programs.
1106 Evaluate/monitor -- in sense of examining personnel performance, effectiveness of on-going operations, etc. Use 7100 series if intent seems to be to conduct a systems analysis for purpose of designing improved operations.
1107 Instruct/teach -- use 1105 for development of training materials/programs
1108 Maintenance/maintain -- in sense of activities that involve troubleshooting, correcting, handling, problems which aides cannot handle. Building maintenance is coded as 1108 & 2111
1109 Operate/perform in SOP fashion -- doing something in accordance with standard practices. Will apply to most daily activities of a librarian
1110 Organize/re-organize something -- such as collection
1111 Production/printing/publishing
1112 Promotion/public relations -- includes tours; preparing newsletters, etc./public speaking
1113 Reprography/copying
1114 Supervise/manage/administrative
1115 Marketing -- selling a service
---- Working with, cooperating with -- use 1102

1200 Professional Activities

1201 Meetings/conferences/training conferences
1202 Reading/self-improvement/continuing education
1203 Training
1205 Miscellaneous

1300 Public libraries/school librarians

1800 Non-library activities -- teaching chemistry

1900 Unaccounted-for-time

1999 Never worked

2000 Library Operations and Administration: Subject Categories

2100 Library Administration

2101 Clientele/patrons
2102 Committee work/meetings
2103 Contracts/grants/proposals
2104 Cost control/accounting
2105 Correspondence
2106 Equipment
2107 Inter-personal interaction/communicating
2108 Library finance/budget
2109 Managerial accounting/business techniques
2110 Personnel counseling/evaluation
---- Personnel relations -- use 2107
2111 Plant & facilities/new space
2112 Policy determination/decision making
2113 Purchasing/payout/payrole
2114 Record keeping
2115 Reporting
2116 Special projects/assignments
2117 Staff duties/job description
2118 Staffing/recruiting/hiring
2119 Student aids/library assistants/trainees
2120 Visitors/tours
2121 Work flow/procedures/procedures manual
2122 Labor relations
2123 Work program
2124 Scheduling
2125 Vendor services
2126 Clerical work/typing
2127 Labor Laws
2128 Copyright Laws
2129 Proofread/edit
2130 Sales
2131 Relocating/moving
2132 Prof./staff
2133 Safety/OSHA
2199 Misc.

2200 Acquisition & Selection

2201 Collection/files
2202 Gifts/exchanges
2203 Ordering
2204 Processing/technical services
2205 Selection/screening/reviewing
2206 Updating
2207 Source location
2208 Archives
2209 Pricing/valuation

ABILITE
List #4

2300 Circulation

2301 Circulation desk/circulation department
2302 Circulation system/procedures
2303 Collecting fines/billing/overdues/service charges
2304 Filing
2305 Inter-library loans
2306 Periodicals
2307 Reserve collections
2308 Serials/monographs
2309 Citation verification for ILL
2310 Book exchange

2400 User Services

---- Basic, general reference -- use 2403
---- Bibliography preparation -- use 8301
2401 Literature searching (manual)--use 5101 for automated search
2402 Reference aids, books, services, e.g., citation index
2403 Reference desk/ready reference/info. desk
---- Reference department -- use 2403
2404 Reference service -- something beyond ready reference
2405 Selective dissemination of info./current awareness
2406 Service to field & subordinate libraries
2407 Set up, establish library branches, collections, etc.
2408 Visits, extension service/travel
2409 Services to the handicapped, patients, etc.
2410 New and/or potential users
---- Public service -- use 2400 (See also 2301 & 2403)
2411 Bibliotherapy
2412 Copying service
2413 Community service
2499 Misc.

2500 Collection Maintenance/Management

2501 Binding
2502 Book marking and pocketing
2503 Materials conservation
2504 Mending/repairing
2505 Replacing (missing, stolen, etc., items)
2506 Shelving
2507 Stocking/inventorying
2508 Weeding
2509 Searching/locating missing items

2600 A-V Materials & Equipment/Non-print media

2601 Audiovisual aids/materials
---- Audiovisual department -- use 2601
2602 Audiovisual equipment
2603 Exhibits & models/displays
2604 Graphic storage techniques
2605 Graphics/visuals
2606 Instructional materials/programs
2607 AV centers

2700 Information Sources & Products.

2701 Clippings/pamphlets/newsletters
2702 Emphemeral sources
2703 Library newsletters/bulletins
2704 Materials (general)
2705 Printed materials -- books/journals/serials
2706 Publications: government
2707 References/reference tools/bibliographies/indexes
2708 Reports and forms/reprints
2709 Technical reports/symposia

2710 Non-book material (see also A-V material)
2711 Medical records/medical info.
2712 Rare book collections/museums
2713 Translation sources/services/abstracts
2714 Bibliographies

2800 Instruction (as a librarian)

2801 Adult education
2802 Computer assisted instruction/self instruction
2803 Dial access/instructional equipment
2804 In-service training/conferences, etc./workshops
2805 Instructional manuals/user manuals
2806 Instructional programs/media/software
2807 Instructional techniques (general)
2808 Librarianship/internship programs/fellowship programs
2809 MEDLARS/MEDLINE/MESH
2810 NLM operations/programs
2811 Networks: extant
2812 Patron orientation/assistance/training
---- Post graduate, shop talk sessions -- use 2804
2813 Instructional hardware/software
2814 Work experience
2815 Medical education
2816 Community-based CE
2817 Health-oriented activities
2818 Career education

2900 Instruction (as a Univ. Instructor)

2901 Curriculum planning/evaluation
2902 Student advisor/liaison
2903 Student placement
2904 Teaching
2905 Educational techniques & principles
2906 Administration

3000 Identification of Informational Content: Subject Categories

3300 Products and Aids

3301 Book catalog
3302 Card catalog
3303 Data/reference files (manual entry)
3304 Glossaries
3305 Lists: holdings, shelf, union, etc.
3306 Thesaurus/index catalog/concordance/authority list, etc.

4000 Data Processing: Subject Categories

4100 Data Processing Applications

4101 Automation of book reservation system
4102 Automation of interlibrary loan system
4103 Automation of serial publication system
4104 Automation of serials
4105 Cataloging -- mechanization, book catalog
4106 Circulation system
4107 File/data base development or upkeep
4108 Indexing

4109 Library automation (general)
4110 MARC system/OCLC
4111 Document delivery systems

4200 Methodology of Data Processing

4201 COMIT
4202 Data base maintenance/upkeep
4203 Data collection
4204 Data processing
4205 Data processing equipment
4206 File organization
4207 Flowcharting
4208 Hardware
4209 Keypunch
4210 Optical methods for ISR
4211 Punched cards
4212 Recording media
---- Software (use 6203)
4213 Tape library

4300 Products, Aids

4301 Printouts, records, etc.

5000 Information Storage & Retrieval: Subject Categories

5100 Operations, Procedures, Requirements

5101 Automated storage & retrieval (general)
5102 Citation verification
5103 Communication systems/networks
5104 Data based systems/networks
5105 Data preparation, to include key-punching
5106 Evaluation of outputs
5107 Query analysis/search formulation
5108 Searching (by machine) -- use 5101
5109 Technical information centers/ special libraries
5110 Terminals/remote access
---- Information Science - use 5000

5200 Theoretical Aspects

5201 Information displays
5202 Information needs
5203 Information resources
5204 Information storage
5205 Information services
5206 Information theory
5207 Information transfer
5208 Information transmission
5209 Perception
5210 Role of theory in retrieval
5211 Search-techniques-optimization theory

5300 Extant ISR Networks/Systems

---- Medical Information Systems -- use 5300
5301 MEDLARS
5302 MEDLINE/CATLINE/AIM-TWX
5303 Networks; cooperatives
5304 Serials
5305 Information centers
5306 SUNY

5400 Products, Aids, etc.

5401 Microforms
5402 Indexes/Index Medicus
5403 User's manual
5404 Micro fiche readers

6000 Computers & Computing: Subject Categories

6100 Theoretical

6101 Algorithms
6102 Computer theory
6103 Information structure
6104 Man-machine interface
6105 Recognition

6200 Applied

6201 Communications/communications sattelites
6202 Compilers
6203 Computer programming/software
6204 Computer utility
6205 Computer technology/equip. characteristics
6206 Dynamic programming
6207 Image analysis
6208 Machine language
6209 Multi-programming
6210 Operating systems
6211 Pattern recognition
---- *Programmed instruction -- use 2802*
6212 Time sharing
6213 Computer type-setting/photo-composition/computer-assisted printing
6214 Documentation

7000 Analysis & Evaluation: Subject Categories

7100 Techniques & Approaches

7101 Cost effectiveness/cost analysis
7102 Decision process
7103 Economic analysis
7104 Ethical aspects
7105 Feasibility
7106 Feedback & control procedures
7107 Inventory management procedures
---- Literature or collection evaluation -- use 2201 + 1106
7108 Requirements analysis
7109 Survey/questionnaires
7110 Systems analysis/Systems engineering
7111 Task/job analysis
7112 Time & Motion studies
7113 User studies
7114 Variables of the system
7115 Work measurement/volume measurement
7116 Program evaluation

7200 Biostatistics

7201 Analysis of variance
7202 Combinatorial mathematics
7203 Decidability
7204 Descriptive statistics/bibliometrics
7205 Estimation

7206 Factor
7207 Probability
7208 Regression & Correlation
7209 Sampling
7210 Statistical analysis
7211 Statistical decision theory
7212 Test of hypothesis

7300 Mathematics

7301 Algebra
7302 Calculus
7303 Differential equations
7304 Equivalence
7305 LaPlace transformation
7306 Mathematics
7307 Non-linear programming
7308 Number theory
7309 Set theory
7310 Vectors & matrices
7311 Financial mathematics (accounting)

8000 Medical & Communication Systems Research: Subject Categories

8100 Modeling & Simulation

8101 Computer simulation (general)
8102 GPSS
8103 Model building
8104 Queueing theory
8105 Simscript
8106 Simulation language
8107 Statistical techniques & simulation

8200 Research Methods

8201 Research design/technology (general)
8202 Research design/technology (biomedical)
8203 Research-library interface
8204 Scientific methods

8300 Research Reporting

8301 Bibliography preparation/service
8302 Data display
---- General, basic bibliography -- use 8301
8303 Literature review/book review/technical review
8304 Technical writing/editing
---- Literature scanning/screening -- use 2405

8400 Library Technology

9000 Misc. Subject Categories

9100 Content Areas of Medicine

9101 Literature of medicine/history of
9102 Medical practice/research/knowledge/terminology
9103 Medical reference
9104 Socio-economic reports

9105 Medical rounds & conferences
9106 Dentistry
9107 Patient care/nursing
9108 Drug-related areas
9109 Public health/medical sociology/psychiatry

9200 Medical/Hospital Librarianship

9201 Accreditation of library programs
9202 Criteria/standards for libraries
9203 Medical librarianship/hospital libraries
9204 New methods & Techniques/Techniques developed at other libraries
9205 Certification

9300 Other Types of Librarianship -- public, law, etc.

9500 Agencies/Organizations/Departments

9501 Field/subordinate libraries/branch
9502 Government ISR centers/networks
9503 Intra-library departments
9504 Library consortiums/cooperative networks
9505 Library of Congress
9506 National Library of Medicine
9507 Professional library societies
9508 Professional medical societies
9509 Regional MLPs
9510 Schools/programs of librarianship
9511 University departments/medical schools
9512 Health departments/Health Professionals
9513 Hospital/hospital clinics, wards, departments
9514 Computer center
9599 Misc.

9600 Misc. Content Areas

---- Literature of science
---- Social science
---- Human factors
---- Basic science

9700 Misc. Skill Areas

---- Communication skills/public speaking